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COMMUNITY WALKING RESOURCE GUIDE

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*Prepared by **Walk**Boston*
With funding from the Federal Highway Administration
For Massachusetts Highway Department, Commonwealth of Massachusetts

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CHAPTER 1

INTRODUCTION

WALKING AS TRANSPORTATION

People walk in Massachusetts. They walk to work, schools and neighborhood centers. From work, they walk to lunch and business appointments. Of the 50 states, Massachusetts ranks fourth in the number of short trips taken on foot, after New York, Illinois and Pennsylvania. The compact nature of the traditional New England community encourages walking because work, home and stores are often within a one-mile radius, or at most a 20-minute walk. Research has indicated that most people are willing to walk up to 20 minutes to reach their destination.

When people walk, they and their communities benefit. Walking contributes to overall fitness by improving circulation, increasing mental alertness, and reducing stress. People who walk for 20 minutes at least three times a week also boost their immune systems and control their weight. Communities benefit through increased vitality, lower infrastructure costs, and improved air quality.

THE COMMONWEALTH'S COMMITMENT TO TRANSPORTATION CHOICE

The Commonwealth would like to see more people walking more often. Walking is non-polluting and does not require expensive facilities or equipment. Because people of all ages and incomes can walk, walking is America's most common form of exercise. If walking can be made safer and more convenient, an even greater number of trips can be taken on foot.

The Commonwealth wants to expand transportation choices for Massachusetts residents. One way in which this can be done is to make walking a more frequently-used transportation mode for short trips. To encourage walking the Commonwealth has undertaken a series of initiatives.

The Bureau of Transportation Planning and Development (BTPD) is preparing a statewide pedestrian plan which will be available in 1997. Other state initiatives include the issuances of Engineering Directives which call for the accommodation of bicycles and pedestrians "within the roadway corridors where access to the roadway is legally permitted," (Massachusetts Highway Department Engineering Directive E-95-007; 11/29/95, on Municipal Projects District Responsibility/Design Standards and the Design Waiver Process, See Appendix 1) and the standardization of crosswalk markings (Massachusetts Highway Department Engineering Directive E-96-001; 3/26/96, on the Standardization of Crosswalk Markings. See Appendix 2).

In the spring of 1996, the Massachusetts Legislature enacted legislation which requires the Massachusetts Highway Department to accommodate bicyclists and pedestrians in "the planning, design and construction, reconstruction or maintenance" of all projects, with some specific exceptions. (Massachusetts General Laws, Chapter 87, Public Ways--Bicycle, Pedestrian Access; 5/20/96. See Appendix 3)

Further, the Governor's Highway Safety Bureau is a state agency that works to reduce motor vehicle-related fatalities and injuries in the Commonwealth by addressing the danger of impaired driving, the use of safety belts and child-restraint seats, the hazard of speeding, and bicycle, motorcycle, and pedestrian safety. The Bureau is funded primarily with federal highway safety funds. The Bureau provides public information and educational materials, technical assistance, and training to advocacy groups, communities and other state agencies that are working to improve pedestrian safety. There are also several regional traffic safety programs across the state using Bureau funds to assist communities in undertaking pedestrian safety activities. For more information about the current pedestrian safety efforts of the Bureau, please call (617) 727-5073 x107.

PURPOSE OF THIS GUIDE

This Walking Resource Guide was commissioned by the Massachusetts Highway Department to illustrate ways in which communities throughout the state are shaping their walking environments. The illustrative examples presented here focus on low-cost, short-term improvements, most of which can be taken without regulatory changes or state approval.

These illustrations provide examples of how the construction or modification of streets, sidewalks and off-street paths are creating more pleasant and direct walkways. Most of these improvements have been adopted in the past five years, an indication that local officials recognize the importance of walking.

The intended audience for this Guide is public works officials across the Commonwealth who may want suggestions on how to improve walking environments in their communities and for whom these examples may be useful.

The methodology used to develop this Guide included literature searches, site visits, and interviews with public works directors, planning officials and traffic engineers in 25 towns and cities. The communities were selected to give a balanced geographic and demographic representation of the Commonwealth.

CHAPTER 2

EXPANDING OPPORTUNITIES FOR WALKING IN MASSACHUSETTS

INCREASED RECOGNITION OF WALKING

At all levels of government -- federal, state, regional and local -- walking is being incorporated into overall transportation policy. Compared with other transportation modes, walking requires very little space, minimal infrastructure, and no special equipment. Supporting walking is consistent with many other public policy objectives. Policy-makers acknowledge that the nation must conserve more space, energy and financial resources.

Children walk to school throughout the Commonwealth, even in winter.

Although walking is being supported at all levels of government, it is primarily local communities that create walkable environments. For example, decisions are made at the local level, in accordance with the Manual on Uniform Traffic Control Devices (MUTCD), to install pedestrian-activated traffic signals along roadways. Local officials decide whether to allocate dollars for snow-removal from sidewalks near schools, transit facilities, business districts, hospitals and other areas.

This pedestrian-activated signal was installed on the busy state highway in Provincetown to enhance the safety of walkers.

THE IMPORTANCE OF WALKING IN MAIN STREET REVITALIZATION

As the study team toured the Commonwealth, it found numerous communities that equated the number of walkers on Main Street with community vitality. This correlation has also been recognized in the *Policy on Geometric Design of Highways and Streets* (1994) published by the American Association of State Highway and Transportation Officials (AASHTO), which states that ***"pedestrians are the lifeblood of our urban areas, especially in the downtown and other retail areas. In general, the most successful shopping sections are those that provide the most comfort and pleasure for pedestrians."***

National retailers also recognize the importance of Main Street. Major merchandising firms are now locating stores in commercial centers. As a result, community centers are experiencing increased pedestrian activity, from which communities and merchants are benefiting.

Street characteristics for which retailers are searching include both adequate sidewalks and on-street parking. The downtown of traditional New England communities has long embodied these characteristics. As Main Streets across Massachusetts revive, community pride increases.

WALKING AND TOURISM

Visitors want to experience new environments on foot. Walking is so strongly linked with tourism that the slogan of the Greater Boston Convention and Visitors Bureau is "Boston, America's Walking City." Walking is the preferred mode of transportation for tourists once they arrive in the City.

Visitors stroll along the Newburyport boardwalk. They are part of the 26 million people who visit Massachusetts each year.

Many Massachusetts communities appeal strongly to tourists because of their historic associations and scenic locations, and they draw thousands of visitors annually. Nearly 20 percent of the state's cities and towns enjoy access to the coastal shoreline or tidewaters, and a far larger percentage offer some scenic attraction which provides recreation or cultural benefit.

Many tourist communities have examined their village centers with an eye to enhancing their appeal to people who stroll and linger there with the intention of enjoying themselves and spending money. Some communities have also added designated walking routes which connect tourist attractions. This has been done in New Bedford, Greenfield and Gardner.

WALKING AND PUBLIC TRANSIT

The transportation policy of the Commonwealth calls for an increased emphasis on intermodalism. Policy-makers are trying to site public transit within walking distance of community centers and residential neighborhoods. Research has shown that between 85 percent and 95 percent of all transit-users still reach bus and train service on foot. Since many people are willing to walk for 20 minutes, or up to a mile to a destination, communities are creating and upgrading walking routes that provide direct access to transit.

Most people walk to transit.

CHAPTER 3

ENCOURAGING WALKING IN CITIES AND TOWNS

Walkways

- **Sidewalks**
- **Walking on Main Street**
- **Off-Street Walking Routes**

Walking is encouraged primarily at the grassroots level of local government. This chapter examines particular examples of individual community approaches to specific issues and problems of walkability in recent years. The treatments described in the following boxed examples are meant as illustrations of what one community did, and are not intended to imply either a right or wrong approach.

Walkers need identifiable routes to get "there from here." Walkways may be sidewalks which run alongside streets or off-street paths which offer more direct walking connections. Some routes are highly designed sidewalks in downtown corridors. Others are graveled road shoulders. Whatever the surface, the most important features of walkways are that they be continuous, direct and safe.

Public officials are increasingly committed to providing walkways. The Massachusetts Highway Department issued an Engineering Directive in 1995 which specified that pedestrians "must be accommodated within the roadway corridors where access to the roadway is legally permitted." (See Massachusetts Highway Department Engineering Directive E-95-007, in Appendix 1.)

This section discusses the importance of all types of walkways in creating a viable pedestrian environment: sidewalks, Main Street walkways, off-street walking routes.

Pedestrians use a variety of walking routes to reach their destinations.

SIDEWALKS

Most walking is done on sidewalks, and for this reason sidewalks are the basic infrastructure of walking. Local public policy regarding sidewalks is influenced by prevailing attitudes and budget considerations. In general, the larger, older, and more urban communities in Massachusetts have a higher proportion of existing sidewalks than do suburban or rural communities.

Massachusetts localities have a fairly complete network of sidewalks in business districts and other built-up areas, but the sidewalk infrastructure outside of the core may be incomplete. In recent years, many communities have begun to retrofit sidewalks to their more suburban-like neighborhoods. Often these new sidewalks have been built to achieve cost savings on school buses. Building sidewalks to encourage walking can also have other benefits, such as savings in fuel consumption, cleaner air, and lower road-maintenance costs.

Since sidewalks are so popular, communities are now requiring developers to build sidewalks on at least one side of the street in new subdivisions. Previously, many developments were built without sidewalks. However, once people settled in these new areas, they requested publicly constructed sidewalks.

Communities are increasingly expanding sidewalk networks to link residential neighborhoods with business districts and to encourage walking as an everyday part of community life. Particularly in populous and densely inhabited urban neighborhoods, the construction, rehabilitation and maintenance of sidewalks are seen as important elements of the public infrastructure. Because children walking to school are one of the largest identifiable groups of regular pedestrians, two of the following examples illustrate the importance of sidewalks to schools. The third shows the importance of good sidewalk design in densely-populated areas.

In Provincetown an inexpensive asphalt walk was recently added to a busy road.

RETROFITTING SIDEWALKS INTO EXISTING DEVELOPMENT

People are more likely to walk when sidewalks are available. Neighborhood sidewalks allow the car-less young and elderly to get about on foot, and encourage residents who own cars to walk rather than drive to work and to nearby stores, schools and parks.

Sidewalks can be retrofitted into existing communities even when property ownership rights are already established and routes seem blocked. Some communities have built sidewalks in existing areas in order to achieve cost savings on school buses. Building sidewalks to encourage walking can also have other tangible benefits, such as savings in fuel consumption, cleaner air, and lower road-maintenance costs.

Retrofitting Sidewalks into Existing Development

CHELMSFORD

In 1981, Chelmsford published a comprehensive Pedestrian Safety Report. This report was the work of a Pedestrian/Traffic Safety Committee which included representatives from the department of public works, the police, fire and school departments and local citizens.

(left) Retrofitted sidewalks in Chelmsford follow the topography.

(right) Some new sidewalk construction involved tearing down and rebuilding stone walls.

The Pedestrian Safety Report established town guidelines for all design and construction work relating to pedestrians. These guidelines are still being used in 1996. The study also determined that schools were "the largest single generator of pedestrian traffic in the Town of Chelmsford." Moreover, the study correctly predicted that as economic pressures grew and costs increased, cuts in school budgets would result in "loss of some buses" and would therefore necessitate a "walk-to-school" program.

To implement the walk-to-school program Chelmsford built sidewalks in the residential areas around schools. Public officials were particularly challenged by the need to retrofit sidewalks into existing developments. Sidewalks were routed around trees and stone walls, over hilly terrain, and on some rights-of-way dating as far back as the 1800s. In some cases, roads were shifted or narrowed, stone walls were torn down and rebuilt, and paths were made to meander around existing trees and to skirt uneven property lines while keeping pedestrian routes as direct as possible.

Costs

Funding for the new sidewalks is town-appropriated by bonds floated for capital improvements. Since the late 1980s, Chelmsford has spent about $70,000 for survey and initial planning, and $270,000 for retrofit construction of 2.75 miles of sidewalks.

Benefits

The effect is remarkable. The new asphalt sidewalks vary in setback from the road, meandering with the topography. Shade is abundant along the paths, and scenery varies pleasantly. Concrete curbs exist whenever the sidewalk abuts the street. Crosswalks are freshly painted and curb-cuts are in place. Families walk or bicycle along the paths on their way to school and playgrounds. Adults use the path to reach the high school jogging track, a popular destination.

Chelmsford found that retrofitting sidewalks in residential areas surrounding schools could be cost-effective. The new sidewalks constructed to date have generated enough walkers to save the town the cost of one school bus, approximately $30,000 each year. The residential sidewalk program has been so successful that additional plans are on the table not only to build sidewalks leading to the schools, but to connect all the schools, parks, and neighborhoods with sidewalks.

BUILDING SIDEWALKS TO SCHOOLS

As stated earlier, children going to school constitute one of the largest identifiable groups of walkers. Recently, public officials in some communities have realized that they could reduce busing costs by providing sidewalks for school-children who live nearby.

Sidewalks Reduce Busing Needs

SANDWICH

Building Sidewalks

In the early 1990s public officials in Sandwich began to consider new schools for their growing community, and a new approach to school busing. The topography, soil and land use of this Cape Cod community were all favorable to installing wide asphalt sidewalks with generous curbside grass strips. The new sidewalks connected the campus-like settings of the new Oak Ridge and Forestdale Schools with nearby residential areas along major town roads. With the one-time expenditure for sidewalks, it was possible to eliminate two school buses for the town's K-8 elementary/middle school system.

Re-examining Village Sidewalks

As a result of that walk-to-school initiative, town officials report that "there is a lot of positive momentum for the construction of more walks." "We built them for the kids, but everyone gets to use them, and they like the idea." The re-thinking of sidewalk connections to residential areas has resulted in additional construction in the older Village area of the community as well. These residents of Sandwich also achieve the health benefits of walking.

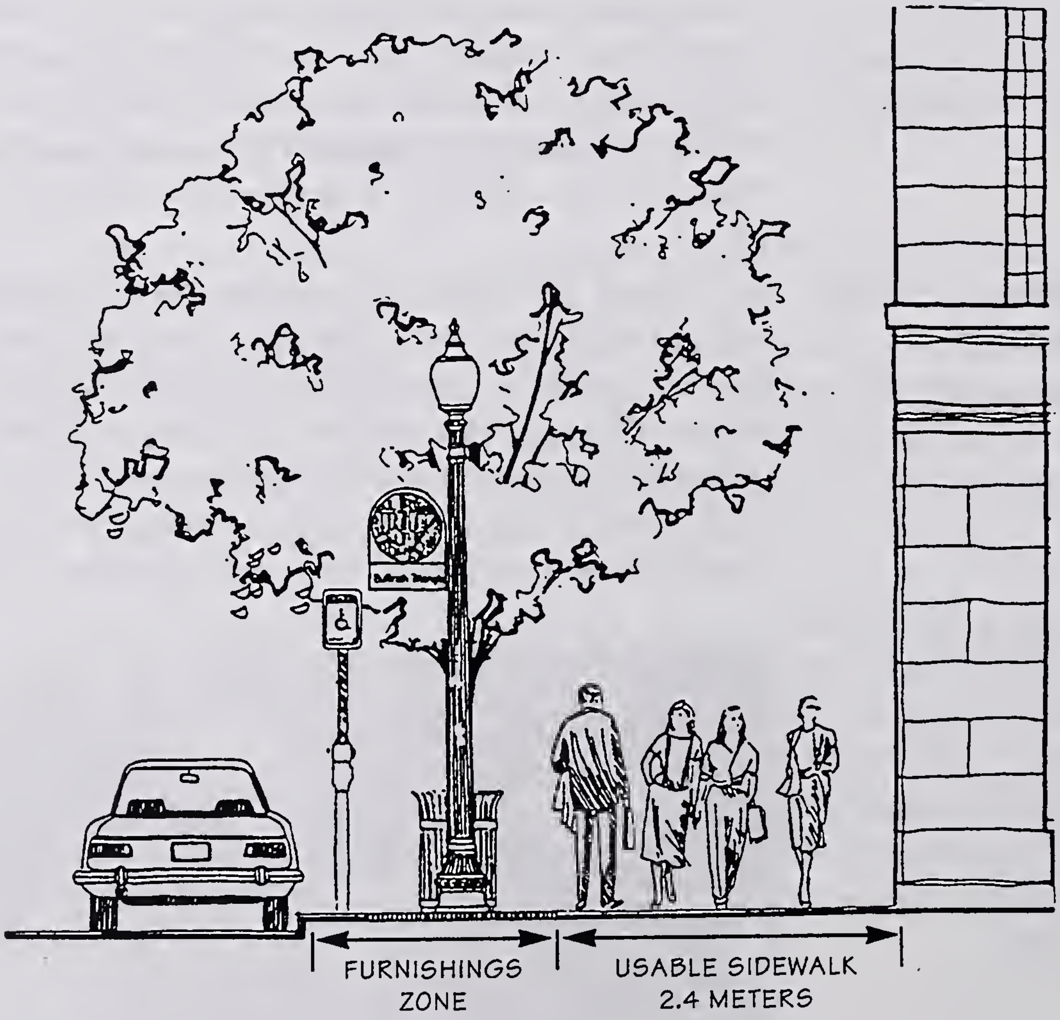
Because more children walk to the Forestdale School on these new sidewalks, Sandwich has been able to reduce its school bus fleet.

DESIGNING SIDEWALKS THAT WORK

Massachusetts communities are recognizing the importance of reallocating scarce street space equitably between pedestrians and vehicles. The result has been a trend toward widened sidewalks and curbsides that provide space for benches, trees and planters, as well as ample room for walkers.

Improved sidewalk programs, moreover, frequently stimulate a general upgrading of private properties abutting the street. In resort and tourist communities (Hyannis, Plymouth, Newburyport and Stockbridge are only four of dozens of examples), flower-boxes, hanging baskets, benches and awnings are found along improved sidewalks, which have become attractive and inviting outdoor extensions of the businesses and

In villages the generally recommended usable sidewalk width is 2.4 meters (approx. 8 feet). This is the area intended for pedestrians. Street furnishings such as trees, light poles, hydrants, and benches should be confined to a furnishings zone out of the way of walkers.



Graphic courtesy of Boston Central Artery/Tunnel project shops. Similarly, in suburban residential communities (Arlington, Lexington, Medford and Newton are some examples), business people working with public works and planning officials have discovered that improved sidewalk design in downtown and village centers can be an important element in retaining and reinvigorating local businesses.

Sidewalk Design for Diverse Uses

CAMBRIDGE

Cambridge is a densely populated city where subway, bus and commuter rail services, plus major universities and colleges and a diverse working population all ensure busy sidewalks. Citizens are actively involved in seeking neighborhood improvements, and a number of business organizations represent constituent interests.

Wide Sidewalks Have Room for All

The sidewalks in Cambridge are most heavily used in the vicinity of Harvard Square, near the open space of the historic Cambridge Common. Here, wide sidewalks accommodate heavy pedestrian volumes. Pedestrians walk along the inner section of sidewalks, while street furniture is placed in the margin near the curbside.

Sidewalk Improvements

While major public utility work creates occasional unavoidable disruption, Cambridge has turned the inevitable to advantage. Municipal policy requires that utility work in streets (gas, water, sewer, buried electrical, telephone or fiber optic cables) prompt a broad internal review to see if other pavement or sidewalk changes should be made in the same area at the same time. The benefits of this systematic approach often help to minimize disruption and cost. Thus Cambridge seeks to leverage sidewalk improvements with general public works requirements, making the best use of scarce public dollars.

A wide sidewalk near the historic burying ground in Harvard Square is buffered by benches, newspaper boxes and mature trees.

WALKING ON MAIN STREET

Main Street is alive with pedestrians, from Provincetown to Pittsfield. Throughout the state, communities are making their main streets walkable. Main streets represent the symbolic and physical center of a community. When public, commercial and civic interests are integrated main streets become alive.

The next three illustrations show how walkable main streets can contribute to downtown revitalization, draw visitors, and promote walking to work.

DOWNTOWN REVITALIZATION

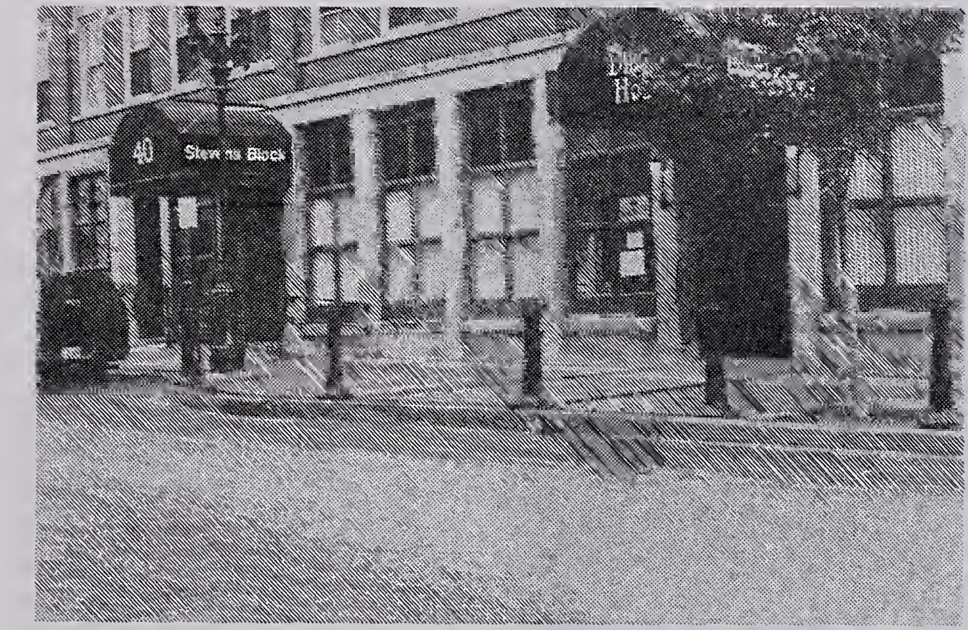
Many Massachusetts communities have undergone an economic revitalization in the past twenty years. Whether changing from maritime- and railroad-based economies to tourism, or from agricultural and farming to an academic base, many cities and towns are recapturing a pedestrian-oriented identity.

The cities and towns that have succeeded in making these transitions have grasped the unique qualities of their communities and managed to bring people on foot physically closer to the heart of the local economy. Here, in the downtowns, the physical expression of the renewal is most strongly expressed.

Streetscape project revitalizes downtown WORCESTER

Worcester officials and businesses are committed to revitalizing the City's downtown. Since 1989, this commitment has been translated into a $10 million program of street realignment, cobbled neckdowns, small parks and bus shelters. Now pedestrians stroll down attractive sidewalks and comfortably traverse streets on well-marked crossings. Bus shelters are easy to reach and attractive places to wait out of the main flow of pedestrian traffic.

The commitment to revitalizing Worcester's downtown grew out of a shared public and business conviction that an "in-town" shopping mall of the 1970's which had turned its back on Main Street had failed to create active street life. The 1989 master plan focused public and private investment in an eight-block corridor along Main Street.



*(left)
Granite and concrete paver sidewalks, bollards and ornamental streetlights create an attractive downtown.*

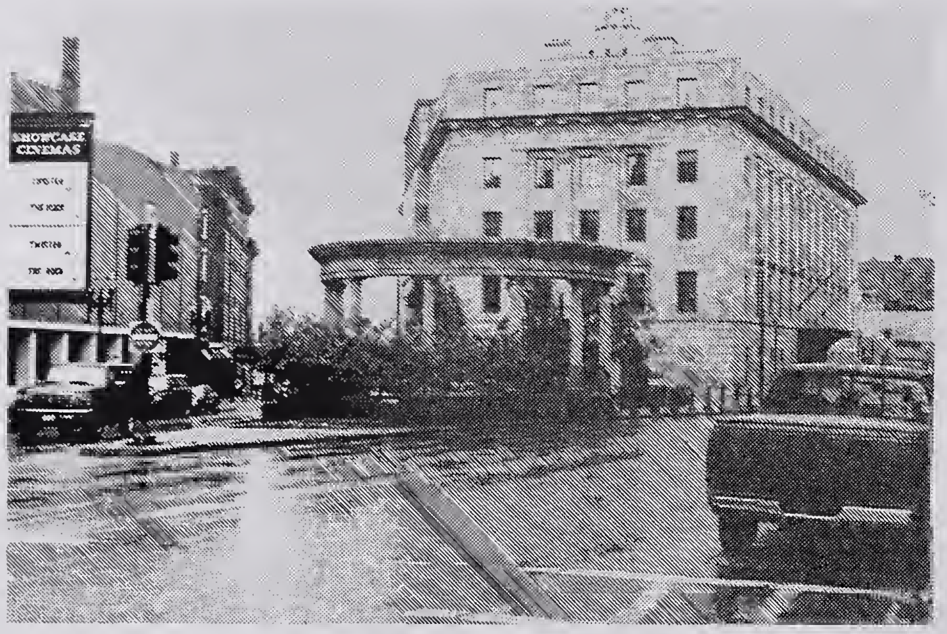
*(right)
On Main Street, pedestrian crossings are well marked.*

A focal point for future improvements will be the 1998 Centennial Celebration of City Hall which is located on Main Street. Public and private funding will facilitate the rehabilitation of the Common behind City Hall.

Citywide Benefits

The Worcester Traffic Engineering Department addresses pedestrian safety and access; pedestrian movement in downtown is considered as important as vehicular movement.

Residents of Worcester are very positive about the future of the City and public officials feel that a large number of pedestrians on downtown streets indicate a revived Worcester. Several private and public projects, including a renovation of Union Station as an intermodal facility, are planned and financing for them is secured, evidence of faith in the City's future.



City officials created a small park, shown here from two different perspectives, to reduce the number of travel lanes on Main Street.

SIDEWALK ENVIRONMENTS IN TOURIST COMMUNITIES

Many revitalized communities have become tourist centers. Visitors are drawn to these communities because of their historic character, and attractive walkable downtowns. Moreover, communities where local residents and visitors mix are often the most popular because of their genuine diversity.

Downtown Streets for Residents and Tourists Alike

NEWBURYPORT

Newburyport is a small city that resisted urban renewal years ago in favor of recapturing a sense of the historic old community. The result is an attractive downtown in which renovated buildings and widened brick sidewalks all combine in a unified and intimately scaled set of spaces.

Wide sidewalks were achieved by converting two parallel downtown streets to one way streets. With this conversion, the streets were narrowed, and the additional space given to sidewalks. In some locations sidewalk widths were doubled, giving strolling pedestrians a better opportunity to window-shop. Here, residents mingle with tourists because a lively diversity of shops caters to the needs of both.

A thoughtful combination of one-way and limited two-way streets in Newburyport helps to give pedestrians high priority.

Good Sidewalks, Good Economics

The combination of one-way streets, with parking on both sides, numerous connecting walkways with features such as lighting and shopfront awnings all present a welcoming presence to pedestrians. Ample parking in a large lot directly behind Market Square accommodates visitors who arrive by car. Merrimac and State Streets are busy with people on foot, enjoying a streetscape that is shared with the automobile.

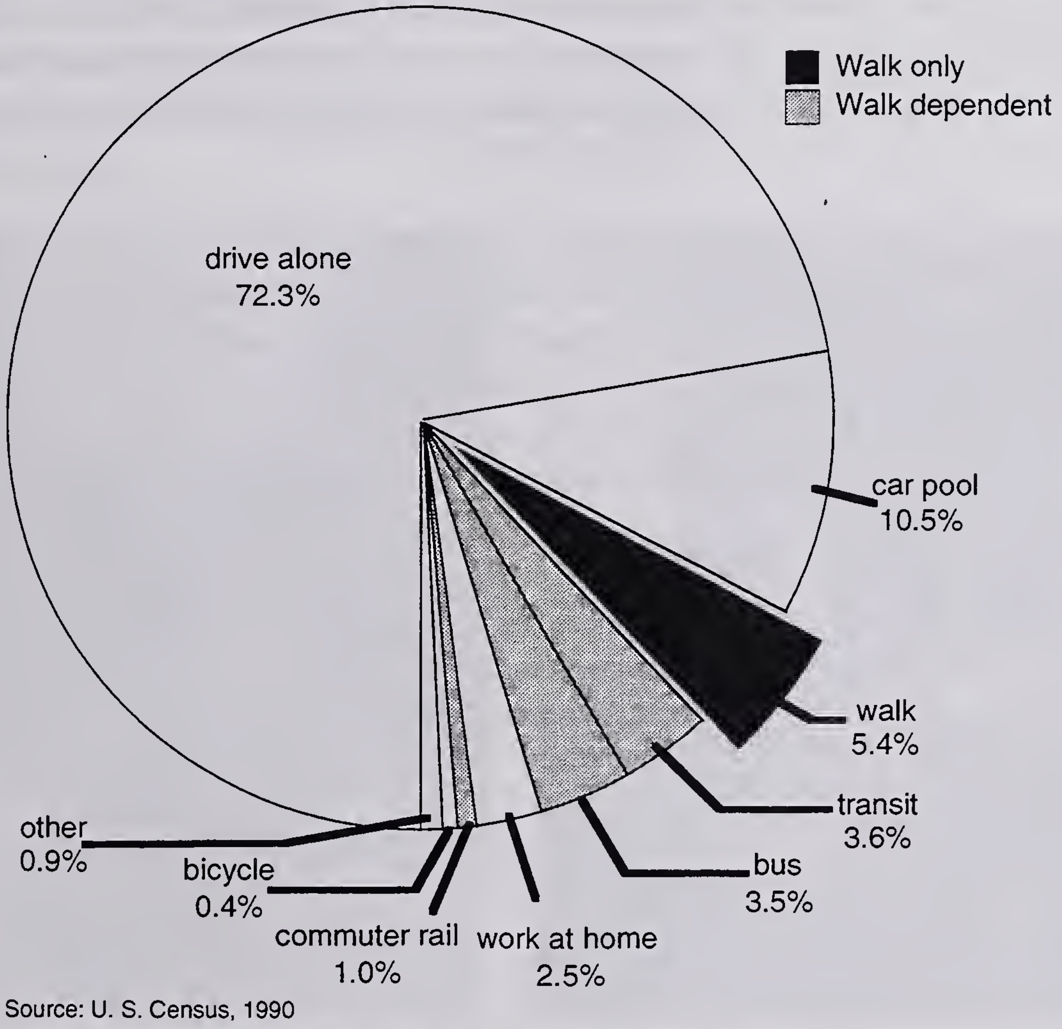
Street vendors do a lively business on a walkway connecting Newburyport's downtown with its active waterfront area.

Elsewhere in the Commonwealth

Many other towns and cities have successfully enhanced their shopping and business districts with a combination of physical improvements -- sidewalks, signalization, traffic regulation enforcement, improved crossings -- and cooperation with business people in the community who opened new restaurants, shops and stores. Northampton has become celebrated for its variety of restaurants and pleasant walking opportunities where crosswalks are frequent and "YIELD" signs are well-observed. Seaside communities like Rockport, Marblehead, Plymouth, Hyannis and Provincetown have all incorporated their heritage and natural assets into walking environments that benefit their commercial districts.

MAIN STREET AS A COMMUTER ROUTE

Walking is an efficient way to get to work for people who live near their place of work. In Massachusetts more people walk to work than take the bus, transit or commuter rail.



Journey to Work Trips in Massachusetts by Mode

Source: U. S. Census, 1990

Getting to Work in Massachusetts. Source: 1990 Journey to Work, Bureau of the Census.

Downtown Pittsfield is one of many places where workers arrive on foot from nearby neighborhoods.

Walking to Work on Main Street

STURBRIDGE

On Main Street in Sturbridge, also known as Route 20, there are several small industries, all located along a three-mile stretch. The businesses include tool and sheet-metal manufacturers, engineering services and tourist attractions like Old Sturbridge Village. Many town residents who live near Main Street are employed in these businesses and walk to work. Since sidewalks on Main Street were repaved recently there has been a noticeable increase in the number of people walking there.

Sturbridge officials agree that sidewalk reconstruction should be an integral part of the road-repaving project on Route 20. Older, deteriorating asphalt sidewalks have been replaced by new concrete ones with curb-cuts. Crosswalks have also been re-striped. Since Route 20 is a state road, the funding for design and construction is provided by the Massachusetts Highway Department.

Benefits

The new sidewalks make walking a more viable form of transportation in Sturbridge, especially when measured against the constant flow of car and truck traffic. Pedestrians have responded in increasing numbers to the opportunity to walk.

OFF-STREET WALKING ROUTES

Many communities have built low-maintenance footpaths to link residences, parks, workplaces, and shops. These footpaths are not as formal as sidewalks and are frequently sited in off-street locations. However, they often provide the most direct route as they cut between buildings, neighborhoods, woods and open space on public rights-of-way. Often the footpaths are sod or gravel and maintenance consists mainly of controlling vegetation.

Both a brick urban alleyway (left) and paved rural path (right) provide appropriate off-street walking routes.

The illustrations that follow show how several communities have connected pedestrian destinations using innovative types of off-street footpaths.

CONNECTING PATHS

In many rural and suburban parts of the Commonwealth, sidewalks would be inappropriate. Less formal paths and walking routes suit the character of these communities, and provide the necessary infrastructure for pedestrians.

Connecting Paths
ARLINGTON

The Minuteman Commuter Bikeway (MCB), is the most heavily used in the U.S., with two million people walking and bicycling on it each year. The creation of this major multi-use path fostered the development of several short adjacent footpaths that connect neighborhoods with the bikeway. These footpaths not only make short segments of the MCB accessible to adjacent neighborhoods, but also make local businesses, such as ice cream shops, more readily available to travelers along the bikeway. The Old Schwamb Mill, a local historical museum in Arlington, advertised its one-day fund-raising sale with a sawhorse sign on one such footpath at the edge of the bikeway. Numerous walkers and bicyclists were drawn to the sale, and their purchases contributed markedly to the success of the event.

Since the MCB connects with the large MBTA Alewife station, these neighborhood footpaths also encourage residents to walk, not drive, to the station. In addition, locally distributed maps enhance the opportunities for residents and visitors to patronize establishments which are just off the bikeway.

Benefits

Paths connecting neighborhoods to parks, woods and conservation lands can improve the quality of community life at low cost. In many cases the routes are already publicly owned or have public easements.

Paths which connect commercial areas and public transit, and which create short-cuts away from vehicular traffic, provide inexpensive alternatives to automotive travel for short trips. Neighborhoods, businesses and cultural establishments all benefit from this increased accessibility and lessened dependence on cars.

A paved footpath in Arlington's Thorndike Field connects the neighborhood to public transit access, while respecting an old tree.

PATHS BETWEEN PARKING LOTS AND BUSINESSES

Everyone becomes a pedestrian at some time, even those people who only walk from parking lots to stores and offices. Once motorists have successfully maneuvered into a parking space, they become pedestrians, typically seeking the shortest, safest and most comfortable route available.

To accommodate these pedestrians, walkways between parking and pedestrian destinations should be designed with the same attention that is given to sidewalks. Key design principles include:

- clear, logical and direct routes to nearby destinations
- pathways that are well-marked (e.g. raised sidewalks with clearly delineated curbing and signs)
- continuous pathways, unobstructed by fixed objects such as parking meters
- walkways within parking lots and garages that are separate from vehicle lanes
- routes through parking lots that have adequate lighting and open sight lines for safety
- trees, plantings, and other features that make walkways comfortable and attractive for pedestrians.

In a Plymouth parking lot, the bright yellow path clearly indicates where pedestrians should walk.

Connecting Parking Lots and Businesses
NORTHAMPTON

Northampton provides direct, well-marked pedestrian routes from parking lots and garages to Main Street. Wide walkways with trees and flowers run through parking lots. Parking lots and garages are situated behind stores. Because of topography, lots and garages may be at different elevations than shops, so stairways on hillsides abound. Overhead walkways also connect parking garages to buildings on Main Street.

Sidewalks along the parking lot edge protect pedestrians by completely separating them from cars that are parking or pulling out.

Northampton created the parking lot connections with a very active Chamber of Commerce and a handicapped-access group. Community Development Block Grants funded the infrastructure improvements.

Northampton lots provide continuous, well-marked, even tree-shaded, walkways leading to rear entrances of Main Street stores.

Benefits to Pedestrians

With parking situated behind stores, the area in front of stores becomes a pedestrian promenade. In addition, the proximity of these parking lots encourages shoppers to do many of their errands on foot. Safe and direct connections from parking areas to businesses allow people to shop efficiently.

Elsewhere in the Commonwealth

Great Barrington built brick-paved walkways to a rear parking lot in order to enhance pedestrian accessibility to small retail businesses on Main Street. The local Rotary Club and a wide variety of local businesses donated funds to build the walkways, and their support is acknowledged on nearby brass plaques.

NON-PAVED CONNECTIONS

Paved sidewalks may not be possible or appropriate for every walking route. In those cases, approaches like widening, leveling, or grading road shoulders can be a creative way of accommodating pedestrians along busy roadways.

Non-Paved Connections

BRIMFIELD

Brimfield is famous for giant antique shows which occur for one week each spring, summer, and fall. Tables, tents, concessions, showers, restrooms, and recreational vehicle-sites with water and electric hookups are set up in huge fields along Route 20 just west of the town center for the occasion.

Because there are no sidewalks where the antique shows take place, pedestrians walk the shoulder of the road, spilling out onto the street. Over the years, the shoulder had degraded to 6 inches below road level, creating a pedestrian hazard. So the town working with the Massachusetts Highway Department regraded the shoulder to bring it up to road level during the Route 20 resurfacing two years ago. Brimfield thus found an inexpensive way to preserve pedestrian safety on an unusual walking route that is very heavily used, but only during those three weeks a year.

Elsewhere in the Commonwealth

Residents of an apartment complex in Swansea often walked the shoulder of Gardner Neck Road to reach a small group of stores on the corner of Route 6. They requested a sidewalk to connect the destinations. However, six large trees stood in the way on a steep hill at a curve in the road where the right-of-way is very narrow. So a gap was left in the new sidewalk at the trees. The town will use striping to narrow the vehicle travel lane to 11 feet and widen the shoulder two feet to accommodate walkers along the road where there is a gap.

Providing Services for Walkers

- **Signage**
- **Other Facilities**
- **Self-Guided Maps and Tours**
- **Walking Routes**

In our primarily motoring society we are surrounded by creature comforts inside and outside as we drive — climate-control, comfortable seats, stereo systems, highway signs for guidance, gas stations and rest stops at regular intervals. People on foot have similar needs for weather protection, comfortable places to sit, signage, water and food, and rest stops. Attention to these distinguishing details leads to a more enjoyable pedestrian setting.

This section highlights some of the services being provided for pedestrians — signage, information centers, service centers, self-guided maps and tours, and marked walking routes — that make walking a pleasant experience in communities around the Commonwealth.

SIGNAGE DIRECTS WALKERS

Walkers use signs in unfamiliar settings to reach their destinations more easily. With clear direction, walkers can take direct routes and avoid detours. Signs shorten trips and reassure walkers they are on the right route and headed in the right direction. This reassurance contributes to an overall sense of being in control in an unfamiliar environment.

Most public works departments develop directional signage for motorists, not for walkers. They are concerned that providing signage for both motorists and walkers will result in visual clutter. However, well designed and placed signage for motorists can also meet the needs of walkers.

Community Signage Program

HYANNIS

Recognizing how important effective signage is for a positive visitor experience, Hyannis has developed a community signage program. Situated in the center of Cape Cod, Hyannis is a village center of the Town of Barnstable, and a major visitor destination. It is also a transfer point for the half-million people annually who board ferries bound for off-shore islands.

The signs along Main Street direct people to the ferry docks, just a 15-minute walk away. With its clear signage program, Hyannis encourages passengers waiting for ferry service to walk to restaurants and stores in the commercial part of town.

The white-on-green signs using international pictorial symbols are made in the town's sign shop. More elaborate signs requiring unusual lettering or graphics are contracted out to a local shop. Signs such as these last approximately 10 years. Hyannis has placed all its signs on a Geographic Information System (GIS). Twice a year street sweeping crews check to see if they have faded or been removed.

Banners and Specialty Signage

Business associations often provide more whimsical signage than town departments. Banners which identify Main Street in Hyannis were provided by the Hyannis Main Street/Waterfront Association, a division of the Chamber of Commerce. They will last an estimated two to three years, and cost approximately $2,000 for 40 such banners, some of which identified other streets in town. Long-lasting brackets were an additional expense.

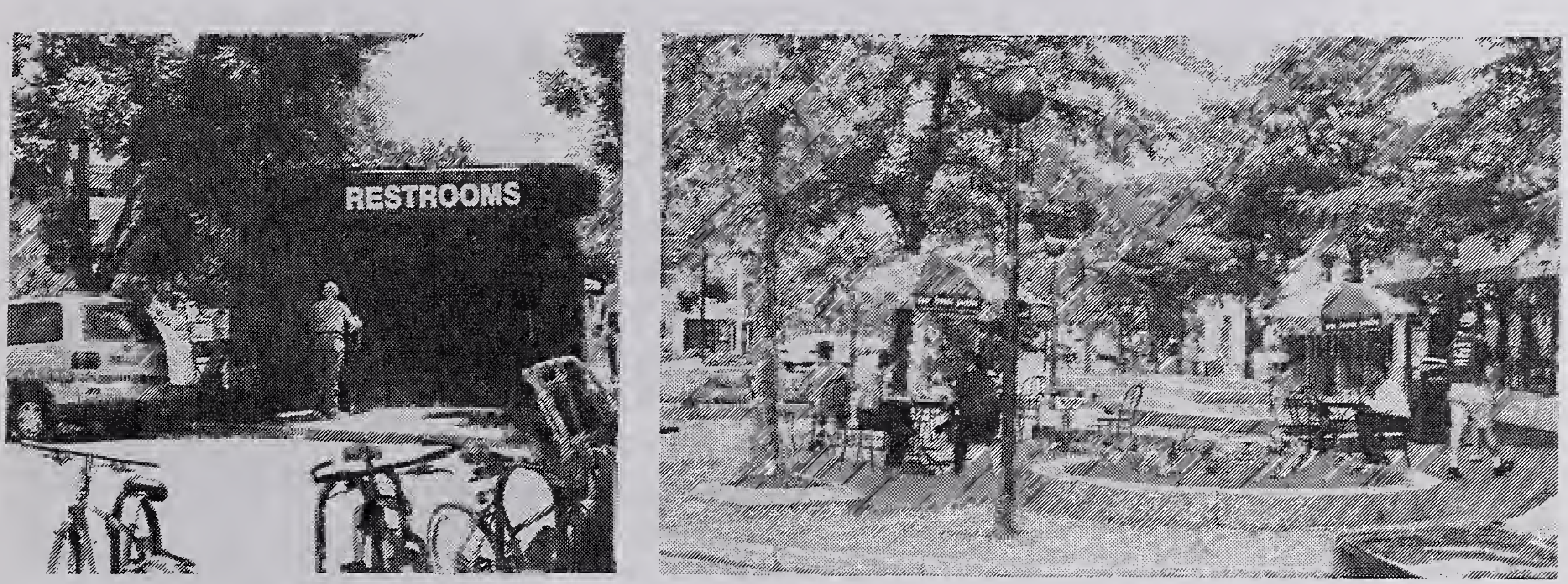
(Left)
Signs direct visitors to ferries a 15 minute walk from Main Street in Hyannis.

(Right)
Privately-funded banners are a colorful way of identifying commercial districts.

THE DESIRABILITY OF OTHER FACILITIES FOR WALKERS

Although safety and convenience of the walking environment may seem like primary criteria for a successful walkable community, the availability of adequate space and necessary facilities for walkers is also desirable.

Walkers are less likely to use a sidewalk that they perceive to be unpleasant — such as a straight sidewalk baking in the afternoon sun beside a long, blank wall. People will use such a sidewalk if they have to, but the same walking route designed to be both comfortable and interesting will attract more walkers and better serve the community.



Plantings, benches, lighting, and restrooms increase the appeal of a pedestrian environment.

Generally the most popular walking environments include many of the following elements:

For Comfort
- shelter and protection from extremes of weather
- seating
- lighting
- trash receptacles
- rest rooms and water fountains

For Interest
- shop and store windows
- architectural detail
- landscaping
- places to stop and chat away from the pedestrian flow

Pedestrian Services
PROVINCETOWN

Located at the furthest tip of Cape Cod, Provincetown is a popular tourist destination. Like other resort communities, it has to handle an enormous seasonal influx of visitors. The center of town is dense and of a human-scale — a quintessential pedestrian environment — and visitors are so important to the town's economy that pedestrian considerations play a major role in planning done by the Department of Public Works (DPW).

In 1996, the DPW completed Fisherman's Memorial Park, a new pedestrian facility that provides services for visitors on foot in the busy town center. The park is located near the town pier, where many visitors arrive by bus and by ferry and is just 120 feet away from Commercial Street, the town's main street, where shops, restaurants, galleries and inns attract thousands of visitors each year. The park is landscaped and has seating and trash receptacles. Its bus plaza offers shelter from rain and sun and provides easy debarkation for persons with disabilities.

Visitors arrive by tour bus at a small park with shade trees and benches, a waiting area, and rest rooms.

The park serves multiple functions. It is the drop-off location for as many as 30-35 daily buses that bring visitors to Provincetown. It is also a pleasant place for arriving visitors to catch their breath, get information from the nearby Chamber of Commerce office, and plan their next stop. Finally, it provides public restrooms convenient to Commercial Street.

Fisherman's Memorial Park is thus the type of project that clearly improves the pedestrian environment. Along with an ambitious sidewalk paving program begun in 1990, the park is part of Provincetown's on-going commitment to facilitating walking for transportation.

The covered waiting area protects visitors from sun and rain, and racks provide convenient bicycle storage.

INFORMATION CENTERS, SELF-GUIDED MAPS AND TOURS

Information centers provide another vital service to walkers. These centers are sought out by visitors as the single best source of information about local activities and attractions. By providing additional services like water fountains, restrooms, benches, and self-guided maps and walking tours, information centers allow visitors to pause and visit the many sites and businesses that communities offer.

Information Center, Self-Guided Maps and Tours

GREENFIELD

Several groups actively work to promote a pedestrian-friendly environment in Greenfield. The Chamber of Commerce operates a prominent information center in the beautiful old Masonic Hall in the heart of downtown. It dispenses brochures, newspapers, maps, transit schedules for the local Franklin Regional Transit Authority bus system, and lots of other helpful advice.

One of the brochures they distribute is a self-guided walking tour of the Downtown Historic District, including a map, a brief history of the town, and a sketch and description of each historic attraction. The booklet is a joint effort of the Recreation Department, Chamber of Commerce, Historical Commission, Historical Society, Kiwanis, Greenfield Community College, the Franklin County Arts Council, and Historic Deerfield.

Benefits

Greenfield's self-guided walking tour not only highlights the outstanding architectural gems in town, but leads right past the many shops, eateries, civic buildings, the town green, sidewalk plaza, and downtown city park. Pedestrian needs are met by benches, shade, rest stops, and stores to browse, plus available food and drink. Shopkeepers providing these services benefit financially from the pedestrian activity. The result is a vibrant downtown, an attractive place to walk, and a good place to do business.

WALKING TOUR
Gardner, Massachusetts
THE GREAT LAWRENCE CANAL AND ITS MILLS
A Walking Tour
WALKING GUIDE OF HISTORIC
Sandwich Village
DOCK WALK TWO
DOCK WALK ONE
Dock Walk 1 is one of two self-guided tours of the working waterfront
City of New Bedford Office of Tourism Waterfront Visitors Center
a walking tour of Downtown Historic District
Greenfield
Massac
New Bedford Architecture A Walking Tour
Waterfro Historic District
New Bedford Architecture A Walking Tour
West of County Street
Presented by the New Bedford Preservation Society, Inc.

This is a representative sampling of walking tour brochures in the Commonwealth.

Elsewhere in the Commonwealth

In communities across the Commonwealth business associations, historical/educational/cultural institutions, and community departments are joining together to encourage walking and promote a lively downtown through information centers and walking maps and tours. For example, New Bedford staffs two information centers (one in the downtown, one on the waterfront), offers regular guided walking tours during the summer, publishes two self-guided architectural tours of downtown, and two self-guided dock walks. The Heritage State Park museums in Lawrence and Gardner serve as downtown information centers which provide a self-guided canal walk and "chair city" historic district walk, respectively. All of these activities are sponsored by civic and business groups.

USING DESIGNATED WALKING ROUTES TO LINK MAJOR ATTRACTIONS

Massachusetts is rich in history. Nearly every community has historical sites clustered around its town center. Many communities encourage visitors and residents to walk to these sites along designated routes that link the attractions.

Marking Historical Walking Routes

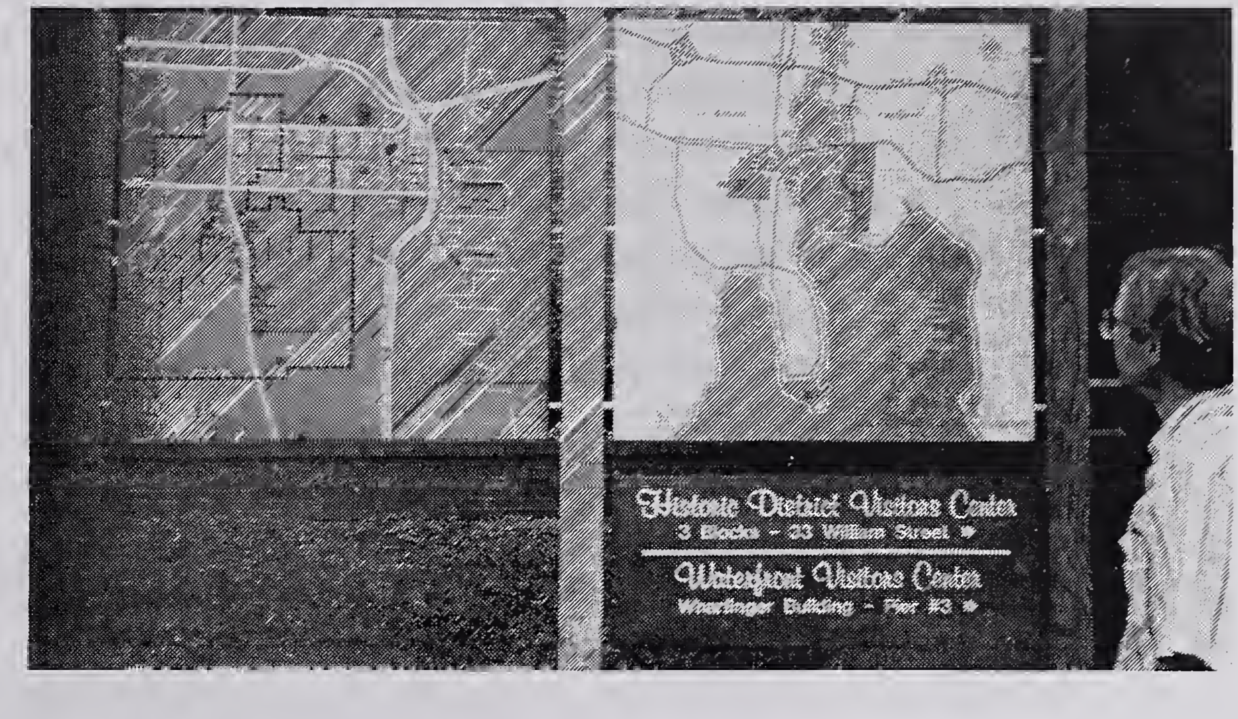
NEW BEDFORD

New Bedford's illustrious past as a whaling center and seaport makes its waterfront area appealing to walkers. To encourage walking and to promote itself as a tourist destination, New Bedford has installed colorful map-signs downtown. The maps show a suggested walking route, called the Moby Dick Trail, which links historic, civic and cultural attractions. The maps are repeated at several locations along the trail, and descriptive signs are posted outside each attraction. The Moby Dick Trail passes both the Historic District Visitors Center and the Waterfront Visitors Center, where maps, brochures, and walking tour information for the compact downtown are available.

The visitor centers of New Bedford are well-marked, as shown in these two photographs.

Benefits

The colorful map-signs provide pedestrians with a feeling of comfort, knowing that they are being guided along the town's most interesting historical routes. The well-organized information tempts tourists to linger longer and spend additional time walking back through history.


Historic District Visitors Center
3 Blocks - 23 William Street ►
Waterfront Visitors Center
Wharfinger Building - Pier #3 ►

The Moby Dick Trail map-sign links all the major attractions of New Bedford.

Walking and Other Transportation Modes

- **Pedestrians and Motorists**
- **Walking and Public Transportation**

The Commonwealth's transportation policy calls for greater reliance on intermodalism. This means linking transport modes so that transportation options are increased and transportation systems become more efficient. The result is the direct, efficient and low-cost movement of people. To that end, commuter rail and bus station sites are being coordinated so people can easily walk to them, between them, or from them to their destinations. Streets are being redesigned to balance the needs of all travelers — pedestrians, motorists, and transit-users alike.

This section discusses ways of interfacing walking with other modes of transportation to achieve a well-balanced, integrated transportation system.

The Commonwealth's intermodal emphasis encourages linking walking with other forms of motorized transport such as transit.

PEDESTRIANS AND MOTORISTS

Transportation planners have taken various approaches to the sometimes conflicting needs of motor vehicles and walkers. In the 1970s traffic engineers in a few towns separated cars and walkers by creating auto-free zones in downtowns. This approach worked well only when there was a great density of walkers, such as Downtown Crossing, the retail center of Boston. In other smaller communities where there were not enough shoppers on foot to compensate for the loss of car-arriving patrons, the removal of cars from downtown streets contributed to an economic decline.

Today, most communities are seeking to balance the needs of walkers and automobiles by designing street systems that will encourage equitably-shared use of the space necessary for walking and vehicular traffic. The focus of state policy and federal legislation is that the safe, efficient and integrated movement of vehicles and pedestrians is desirable. In these situations the movements of both vehicles and walkers must be predictable, and safety a priority.

The following examples illustrate several ways of accomplishing these goals: by making crosswalks prominent, adjusting traffic-signal timing, narrowing streets, posting and enforcing speed limits, posting and enforcing local crosswalk regulations, and shortening street crossings with neckdowns and sidewalk plazas.

MAKING CROSSWALKS PROMINENT

Street systems work most efficiently for pedestrians and drivers alike when walkers' movements are predictable. For this reason, traffic engineers identify pedestrian crossings by prominent road markings.

Making crosswalks prominent is one way to encourage pedestrians to cross streets at designated locations. The location and use of crosswalk materials and painting are local decisions, and many communities have shown creativity in this regard. (See Massachusetts Highway Department Engineering Directive E-96-001, 3/26/96, on Standardization of Crosswalk Markings, in Appendix 2). Since crosswalks are so common, the case study draws upon examples from various communities.

The MUTCD (Manual on Uniform Traffic Control Devices) recommends the parallel style of pavement markings to effectively warn motorists of pedestrians crossing the street.

Making Crosswalks Prominent
VARIOUS COMMUNITIES

Crosswalk Placement

Locating crosswalks is a practice which requires awareness of national guidance and local ordinances, conditions and needs. Communities make siting decisions based upon sound engineering practices and additional information sources available to them. Areas with high pedestrian volumes, such as business districts, tourist areas and schools, are among the most obvious sites for crosswalks.

Although crosswalks are typically placed at intersections, the wide variety of local conditions makes sound judgment essential in siting crosswalks. Because pedestrians cover less distance than vehicles can, crosswalks may be placed at relatively short intervals. (See Massachusetts Highway Department Engineering Directive E-96-001, 3/26/96, on Standardization of Crosswalk Markings, in Appendix 2).

In some communities, cooperation between municipal and commercial interests has also resulted in the extension of crosswalks through private property, such as parking lots, in order to create a better sense of pedestrian security.

Crosswalk Markings

The most typical crosswalks often consist of two painted lines across the road, although thermoplastic is often preferred for its greater durability, especially in locations with high traffic volumes.

The other most commonly used crosswalk designation is a series of closely spaced broad white lines painted diagonally across the road or parallel to it, forming a ladder-like marking known as a zebra crossing. These highly painted crosswalks can be a concern for walkers because when more of the road surface is covered it becomes more slippery when wet. However, the highly painted crosswalk is a more noticeable and reliable indicator to pedestrians and motorists.

Enhanced crosswalk visibility sometimes leads to partial or complete painting of the space between the parallel lines. One community marked a centennial year by painting its crosswalks solidly in red, white and blue. Solid yellow is often used for contrast and visibility. Elsewhere, green crosswalks imitate grassy strips. Blue is occasionally used, particularly in hospital zones. Short words such as "LOOK" or "PED X-ING", and ideograms like the image of a striding child, are sometimes stencilled in the space between the parallel white lines to highlight the crossing. Crosswalks need to be regularly painted because when markings have been worn smooth, they become slippery when wet.

Crosswalk Surfaces

Paint and thermoplastic are still the most common materials used to designate crosswalks. Some communities, however, also install expensive durable materials such as brick, granite (brick and granite may lead to rougher, irregular surfaces if not maintained properly) and concrete paving, for crosswalks in specific areas. The advantages of these materials are greater durability when properly installed, high visibility against the typical black road surface, and a texture which reminds motorists through sound and vibration to be alert for pedestrians. The disadvantages are high installation cost, occasionally high maintenance requirements when components are dislodged, and the ongoing need to highlight the outer edges with white paint or plastic in the conventional manner.

Well-marked diagonally-striped crosswalks display local design creativity in Great Barrington.

TRAFFIC SIGNAL SYSTEMS

The Manual on Uniform Traffic Control Devices (MUTCD) specifies the sequence of signal phases, but not the timing of each individual phase. Often, walkers get only seven seconds of "WALK" in a 90-second cycle. Pedestrians become impatient and may disobey "DON'T WALK" signals, traffic permitting, unless the "WALK" portion of the signal is frequent and long enough to permit them to cross. Additionally, people often interpret the flashing "DON'T WALK" as an alert to stay out of the street although it is an indication that if a pedestrian has already begun to cross the street, there is sufficient time to complete a street crossing. In most traffic signal systems the amount of time given to flashing "DON'T WALK" is much longer than WALK.

To facilitate pedestrian crossings, some communities provide more than seven seconds of "WALK" time in the signal system. Another technique for reducing the time pedestrians must wait is to reduce the total signal cycle time from 90 to 60 seconds as has been done in Cambridge. A growing number of towns use audible signals, such as bells, in conjunction with "WALK" for the benefit of blind pedestrians.

More "Walk" in Traffic Signal Timing

CAMBRIDGE

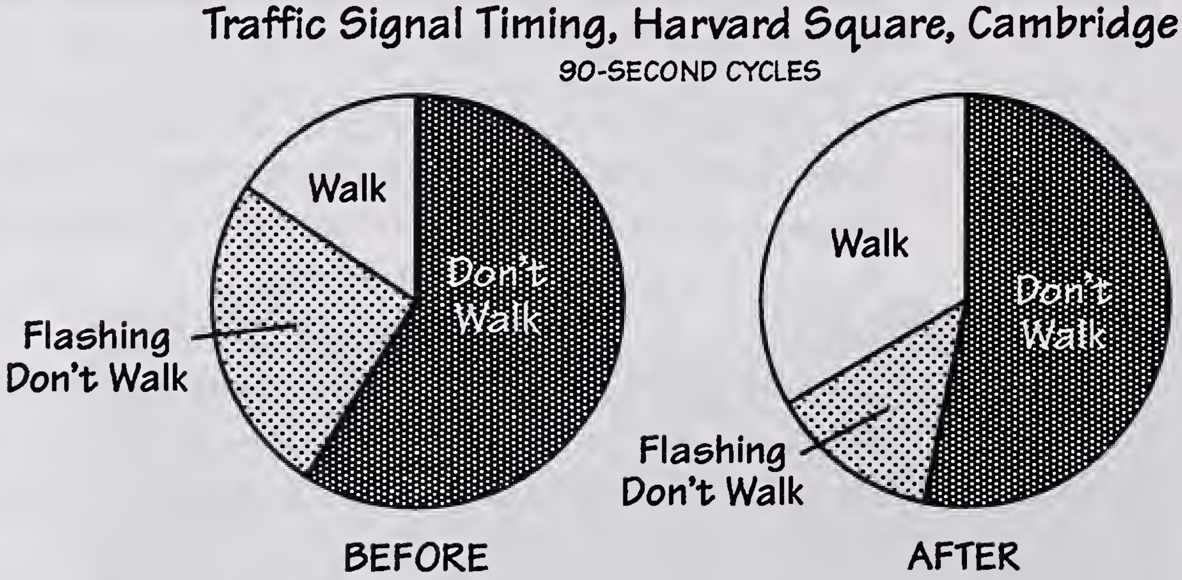
Cambridge is a city of walkers. Residents walk to restaurants, shops, work and the city's colleges and universities. Pedestrians near Harvard University and the Massachusetts Institute of Technology (MIT) frequently ignored signal lights, creating congestion for drivers and unsafe conditions for themselves.

Responding to requests from university-affiliated people complaining about inadequate crosswalk times on Massachusetts Avenue at MIT, the City's traffic engineer reduced the traffic signal timing so that walkers have to wait only 36 seconds before crossing the street.

Following the success of the altered signal timing at MIT, the Cambridge Pedestrian Advisory Committee recommended similar changes for two Harvard Square crosswalks.

Subsequently, at Harvard Square MBTA station crosswalks on Massachusetts Avenue, "WALK" cycle time was increased from 14 to 30 seconds in a 90-second signal cycle. This was accomplished by reducing flashing "DON'T WALK" from 23 to 12 seconds, and reducing "DON'T WALK" (vehicle green) from 50 to 45 seconds.

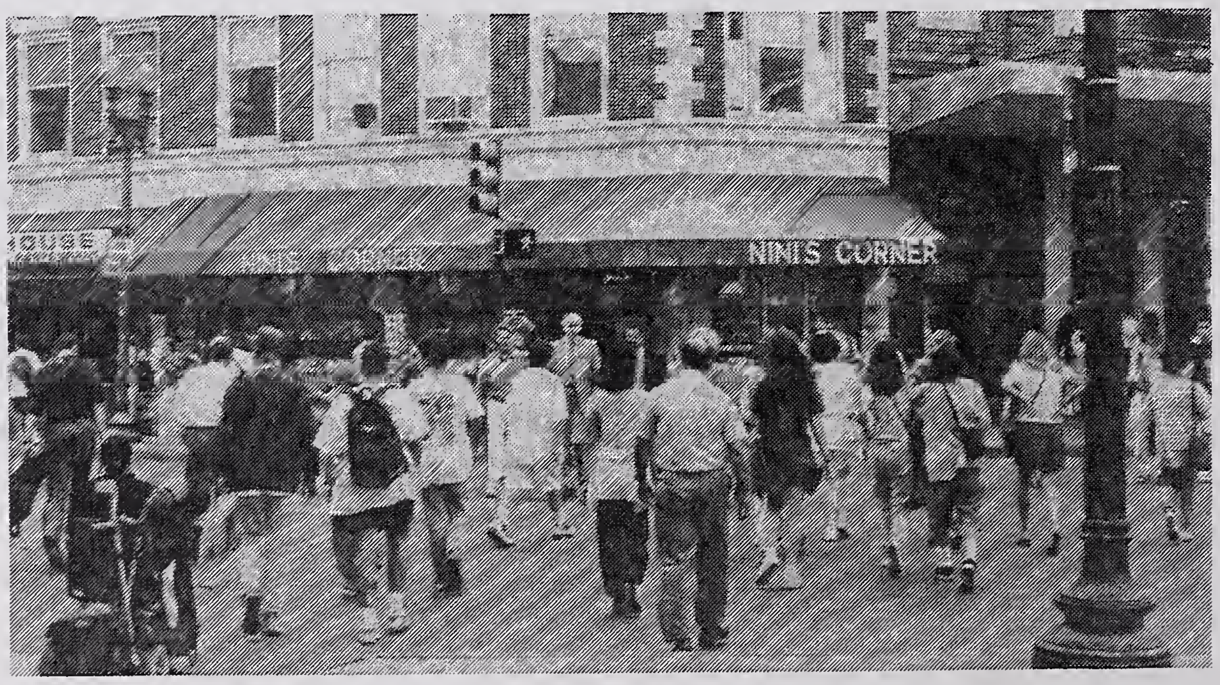
Signal cycles were revised at Harvard Square to better balance the flow of pedestrians and vehicles.



Benefits to Pedestrians and Drivers

Previously, pedestrians in Harvard Square would pause at the lengthy flashing "DON'T WALK" signal. Because cars would not move for some time, walkers began to cross the street anyway. Vehicular traffic would then receive a green signal but find their movement blocked by pedestrians. Both pedestrian and vehicular movements are now smoother and more efficient because pedestrians can cross with the lengthened "WALK" signal.

Heavy pedestrian traffic in Harvard Square is assisted by longer "WALK" in the traffic signal cycle.



NARROWING STREETS

In areas which attract large numbers of pedestrians and motorists, some communities are developing creative approaches to achieving a better balance between pedestrian and vehicular movement. One such approach is narrowing streets in order to slow vehicular traffic and to provide more space for walkers. Narrow streets allow for wider sidewalks and shorter crossing distances for pedestrians, making it easier for them to cross, yet such streets still accommodate large numbers of cars moving at a moderate but steady pace.

Narrowed Streets Create Space for Walkways

NEW BEDFORD

New Bedford has completed a mile-long path connecting Fort Tabor Park with a nearby beach. The combination walkway and bicycle path is ten to twelve feet wide, with separate lanes for pedestrians and bicyclists. Where the land between homes and the bay is narrow, the concrete walking path is next to the asphalt bicycle path. Where space permits, the paths physically split to curve around wide grassy stretches or pass by piers and rocky outcroppings.

To achieve a better balance between motorized and non-motorized traffic, the City narrowed the one-third mile of Rodney French Boulevard bordering Fort Tabor Park. A center island was built and the shoulder was widened by six feet. This slows vehicles in an area that gets heavy usage, especially on summer weekends. The shoulder is now wide enough for the walkway, a broad grass strip between the path and road, and shade trees.

Costs

The City of New Bedford constructed the trail in 1995 with $90,000 of city funds. The Waterfront Historic Area League of New Bedford (WHALE) and the New Bedford Harbor Trustee Council actively supported the waterfront improvements.

The route has been so popular with residents that there has been no problem to date in receiving the necessary easements. In 1997 the City plans to extend the bikeway/walkway along the east beaches. This expansion will necessitate the narrowing of roads and the requesting of new easements.

The roadway around Fort Tabor Park was narrowed to accommodate the bikeway, pedestrian path, a wide grass strip, and new shade trees.

Benefits

The new walkway is bringing life back to New Bedford's beaches. It serves as a neighborhood-to-waterfront connection, enabling residents to reach their beaches on foot, on bicycle, on in-line skates, or by vehicle. The narrower road and wider path give each mode of transportation enough space for the volumes and flow they require with less conflict.

ENFORCING SPEED LIMITS

Whether in downtowns, village centers or neighborhoods, police enforcement of speed limits and crosswalk restrictions is critical to pedestrian confidence and safety. Lax attitudes toward enforcement can be changed over time, particularly when an organized constituency develops a voice and municipal officials hear that voice. In Sandwich, on Cape Cod, where the population is increasing significantly, neighbors and municipal officials worked together to enforce speed limits.

Posting and Enforcing Speed Limits

SANDWICH

"People Are Speeding"

A group of residents in one of the older, established sections of Sandwich became angry about cars speeding through their quiet neighborhood. They requested that the town selectmen enforce speed limits. The local government responded.

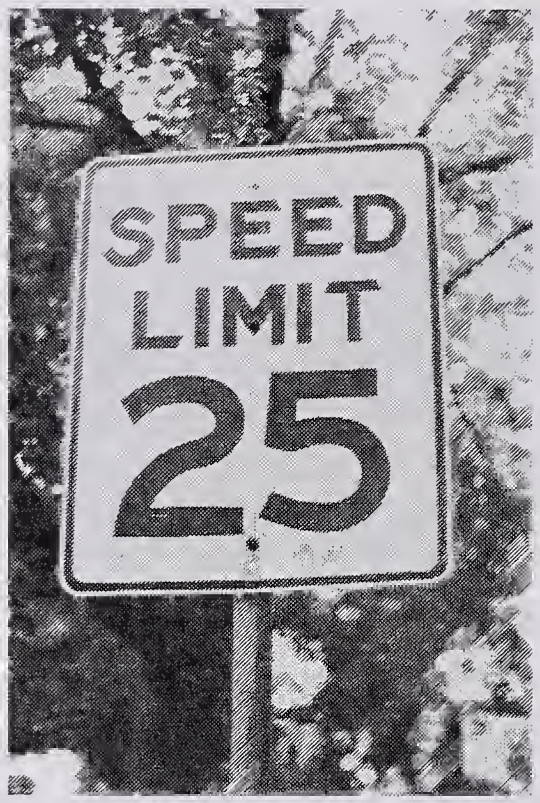
Pedestrian safety is significantly increased when vehicle speeds are lowered and posted speed limits are strictly enforced. Typically, the impetus for such actions comes from local residents who observe cars speeding through their neighborhoods. They turn to municipal officials and police and request that posted speed limits be enforced. In response, the local Department of Public Works may upgrade its sign standards to meet those specified in the Manual on Uniform Traffic Control Devices (MUTCD). Meanwhile, local police can begin a period of strict traffic speed enforcement.

With limited municipal resources, it may be difficult to sustain a comprehensive police enforcement program on all residential streets. The problem of vehicles speeding through residential communities cannot be addressed by local officials and police alone, because demands on their time and resources often exceed their ability to respond adequately to public expectation. Rather, the problem can be confronted by the community as a whole, beginning with neighborhood residents who set an example for others by driving safely within posted speed limits and monitor vehicle movements on their own streets.

Benefits

Pedestrian safety is significantly increased when vehicle speeds are lowered through strict enforcement of posted speed limits.

Speed limits of 25 miles per hour are posted in many neighborhoods and on main streets.



CROSSWALK ENFORCEMENT ON MAIN STREET

Pedestrian safety on Main Street is enhanced when motorists yield for pedestrians. Nationwide, according to the National Safety Council, approximately 5,600 pedestrian traffic deaths occur annually, along with 65,000 non-fatal pedestrian traffic injuries. In the Commonwealth in recent years, the traffic death rate has been one-half the national rate, on both a population- and vehicle-mile-basis. Total traffic fatalities in Massachusetts in 1995 were 444. Of this total, 84 were pedestrian deaths. Balanced transportation on Main Street requires a combination of thoughtfully located and well-maintained pedestrian crossings, with good signage, and effective traffic enforcement.

Traffic Enforcement on Main Street

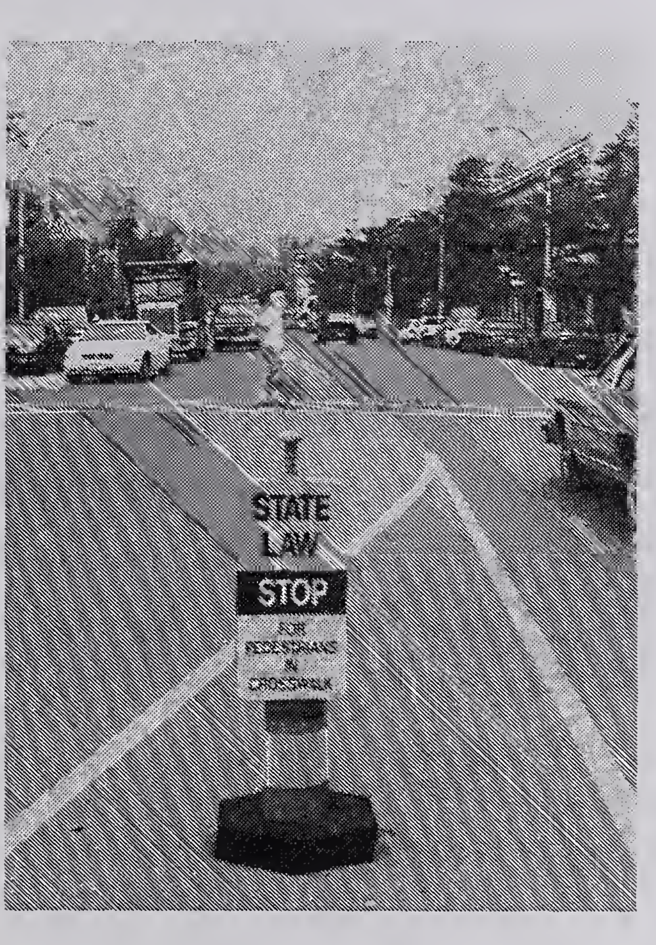
ARLINGTON

Massachusetts Avenue is Arlington's busy main street. At its widest point, Massachusetts Avenue has seven lanes, including parking and turning lanes. A major pedestrian safety problem is the failure of drivers to yield to pedestrians who are already in the crosswalk. The crosswalks are generally well-maintained and some, but not all, are marked with mid-street signage.

The frequent mix of automobiles and trucks in parallel lanes often obscures drivers' views of pedestrians. Although there have been no fatalities in the past five years, pedestrian crash records showed 14 injuries in 1995, according to the local press.

Traffic Enforcement

Assisted by a safety grant from the Commonwealth, Arlington police recently intensified their efforts to enforce speed limits and the requirement to yield to pedestrians. Fourteen citations were issued within a week. Whether the brief enforcement period has a lasting effect remains to be seen.



This crosswalk connects Robbins Library with a commercial district and municipal parking. A nearby crosswalk at Town Hall was the site of a serious pedestrian crash.

YIELD-TO-PEDESTRIAN SIGNS IN CROSSWALKS

Some communities have determined that striped crosswalks are not always sufficient to protect pedestrians from traffic. In the past several years, communities have increasingly placed "YIELD to Pedestrians" signs right in crosswalks, in accordance with Massachusetts General Law 89, subsection 11 (hereafter referred to as M.G.L. 89, subsection 11 — see Appendix 4). Although a few communities place such signs on the edge of the street, some traffic engineers feel that they are more visible to drivers when they are put in the crosswalks, particularly at heavily used mid-block crosswalks.

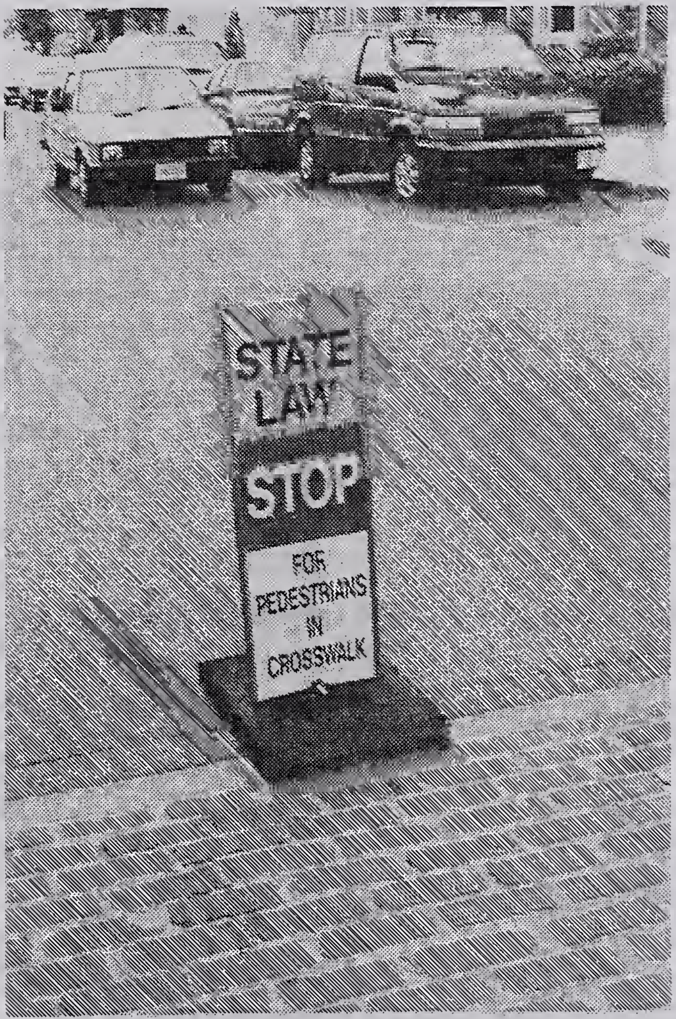
To further increase the visibility of the signs, local Department of Public Works staff are placing them on small plastic barrels which are almost always orange-colored. These barrels are more readily visible from a distance to motorists than the crosswalk lines and provide a semi-permanent physical presence in the crosswalk that is intended to help reassure pedestrians that they will be noticed as they advance across a walkway.

Both community groups and public officials agree that crosswalk signs alone do not ensure compliance with the pedestrian right-of-way. The signs play an important educational role for out-of-state motorists and residents alike, but regular police enforcement is also required. Communities with a reputation for vigorous enforcement of crosswalk laws have an observably high level of compliance.

Posting Signs at Crosswalks

HYANNIS

In Hyannis, a village of Barnstable, residents complained that vehicular traffic was moving too fast. Residents asked for more protection in crossing Main Street. The town's response was to place a "STOP For Pedestrians" sign on Main Street. (M.G.L. 89, subsection 11 requires motorists to yield to pedestrians.) The sign is placed at a mid-block crosswalk. According to the Town Engineer, motorists would not stop for pedestrians without the sign. This crosswalk also has a small speed bump which raises it slightly and thereby slows drivers.



This "STOP for Pedestrians" sign is placed on a slightly raised crosswalk in Hyannis.

At one time the signs were placed on orange barrels which apparently worked as well as cones. However, people objected to barrels and cones, claiming that they made the crosswalk look too much like a construction site.

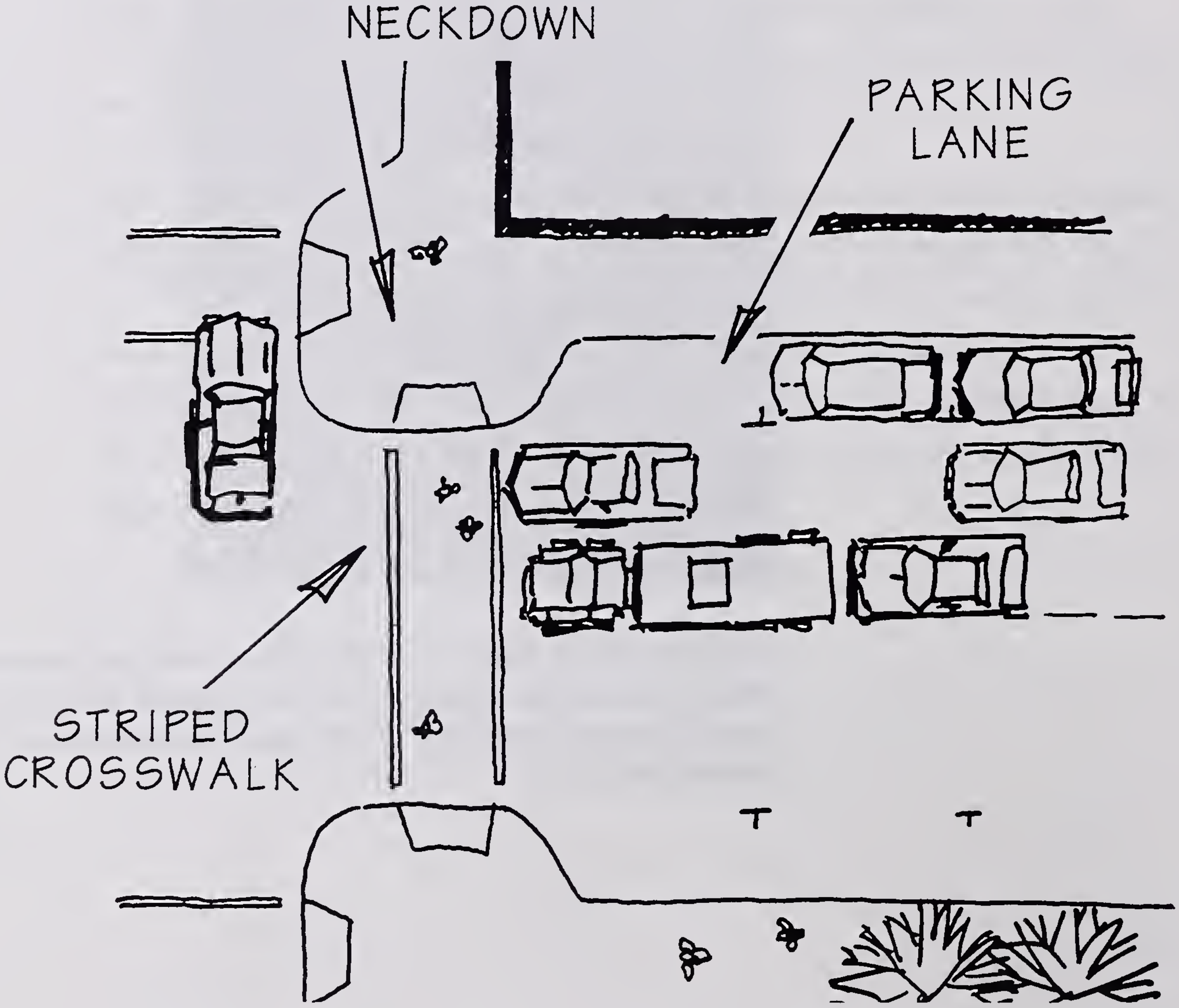
SHORTENING STREET CROSSINGS WITH NECKDOWNS

In areas of high pedestrian usage, many communities are looking for ways to enhance pedestrian safety and convenience without causing undue interference with vehicular movement.

One common technique is to extend the sidewalk out into the parking lane. Sidewalk extensions, also called neckdowns or bulb-outs, widen the sidewalk and narrow the street. Typically, Public Works Departments build sidewalk extensions at busy intersections. The extensions reduce the distance of street crossings for pedestrians, and visually narrow the street, thus slowing vehicular traffic.

Neckdowns are fairly small, often no longer than one car-length. This type of neckdown is seen on commercial streets throughout the Commonwealth.

This typical neckdown style found at sidewalk corners shortens street-crossing distance for pedestrians.

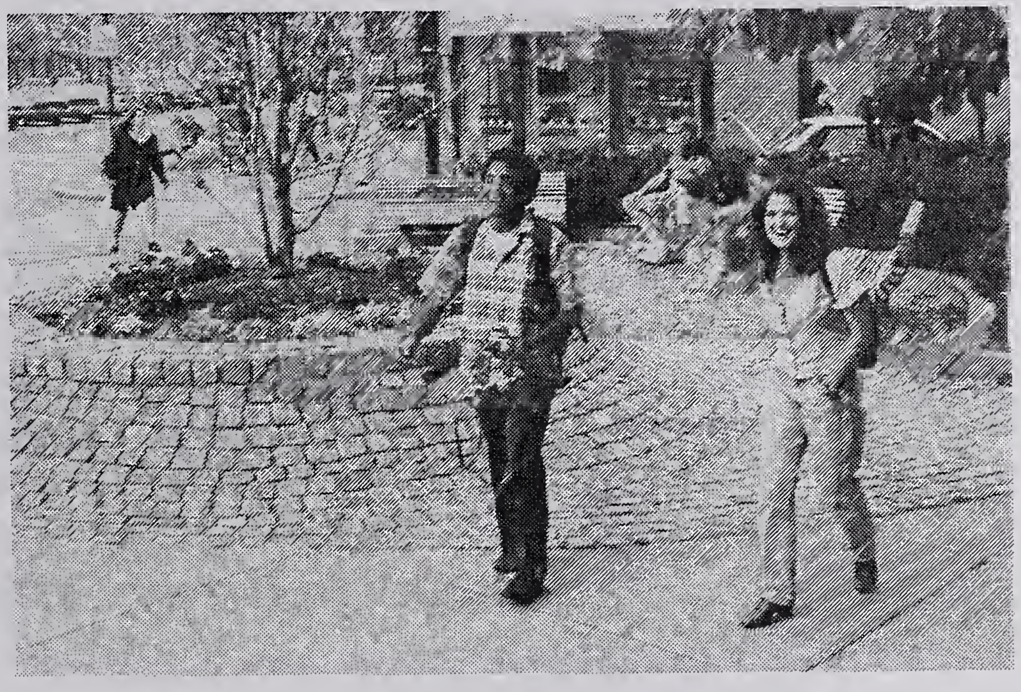


In Great Barrington, a newly completed neckdown extends a mid-block crosswalk on Main Street.

SIDEWALK PLAZAS

Sidewalk plazas are a type of sidewalk extension similar to neckdowns, in that they narrow streets, especially at intersections, but they are larger and function as small parks. They offer space for benches, plantings, trash receptacles and street lights, but without impeding the flow of pedestrian traffic. They are usually located in commercial areas.

Sidewalk extensions can be found in many communities with busy downtown commercial districts, such as Lawrence, Brookline, and Northampton. Such plazas provide refuge for walkers in areas of heavy pedestrian and vehicular usage.

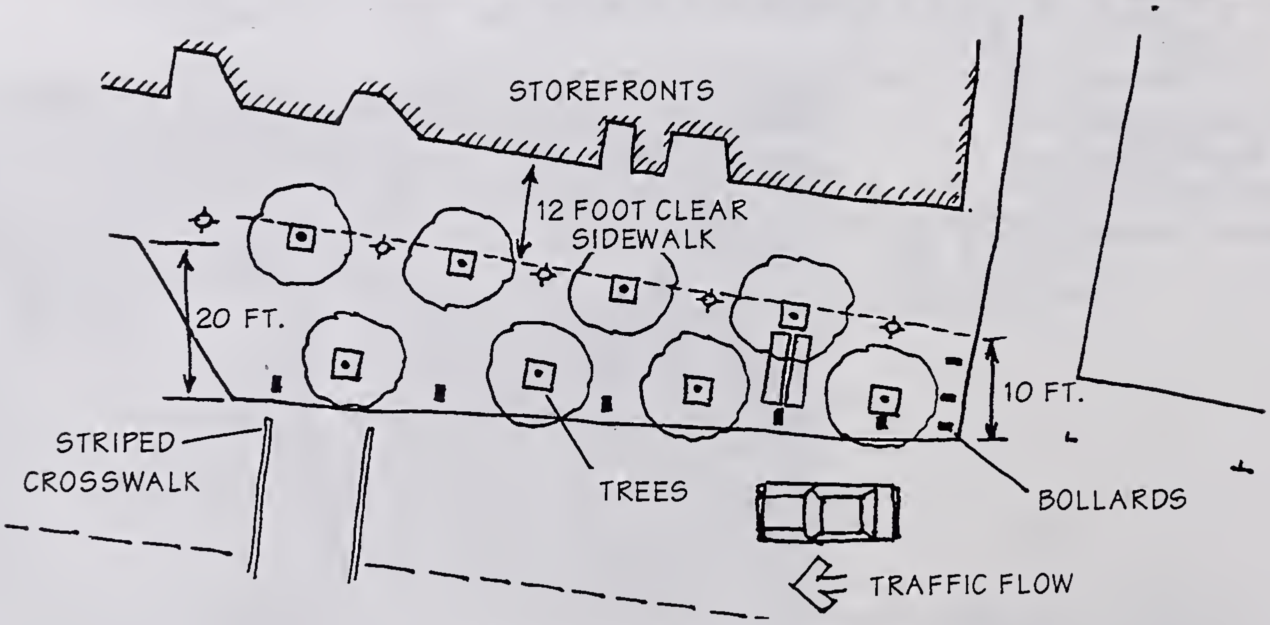


A sidewalk plaza on Beacon Street in Brookline is a pleasant respite.

Sidewalk Plazas
GREENFIELD

Greenfield installed a sidewalk extension on its busiest Main Street intersection to create a larger, more appealing space for pedestrians. This sidewalk plaza is large enough (95 feet long by 20 feet at its widest) to include benches, shade trees, planters, bollards and street lights. Since the sidewalk plaza was constructed ten years ago, it has undergone some adjustments. For example, the trees have been trimmed so store signs are clearly visible. Some benches have been removed to deter loitering. In the future the town will secure the bollards with stronger base-attachments so that snow plows will not knock them down. The old-fashioned light fixtures may be replaced with taller ones which can benefit both walkers and drivers.

The size of Greenfield's sidewalk plaza can be seen in the photograph (above) and sketch (below).



GREENFIELD SIDEWALK EXTENSION

A Shared Responsibility

Governmental and business leaders in Greenfield worked together to plan, develop and maintain the original sidewalk plaza. The state provided an initial planning grant. A federal streetscapes enhancement program provided additional funds.

Benefits to Pedestrians and Community

Overall, community leaders feel that the sidewalk plaza has paid for itself in terms of increased downtown vitality. Both pedestrians and adjacent shop-owners say that the sidewalk plaza is a pleasant place to pause while shopping or walking, and provides a safe way to cross the street.

An unexpected benefit has been the elimination of a traffic bottleneck on Main Street where the roadway abruptly narrowed from two lanes to one. Now that the sidewalk extension visually narrows the roadway, motorists more quickly and smoothly move into the single traffic lane.

The plaza has been so successful that Greenfield has just released a design contract to extend the sidewalk plaza project to the rest of Main Street.

Greenfield's sidewalk plaza on Main Street is a pleasant place to pause while shopping or walking.

WALKING AND PUBLIC TRANSPORTATION

Public officials in communities across the state are encouraging people to walk by locating bus and train service in downtowns and by creating direct walkways to residential transit stops.

Most users of public transportation in the Commonwealth walk to the bus or train station. There are approximately 1.2 million trips on foot per day to and from public transit. The Commonwealth transportation policy calls for continuing efforts to provide easy walking access to transit.

The next three examples demonstrate how walking can be connected to public transit in suburban neighborhoods, in downtowns, and in small commercial centers.

Most bus riders walk to and from bus stops.

WALKING TO TRANSIT IN SUBURBAN NEIGHBORHOODS

Communities are beginning to use public rights-of-way to create direct links between transit and downtowns and between transit and neighborhoods. The recent expansion of the commuter rail system in eastern Massachusetts has been a catalyst to creating these off-street walkways. In order to provide walkways for the four-out-of-five transit passengers who walk to bus and train service, communities are using public easements and rights-of-way created by aqueducts, transmission lines and abandoned rail lines.

Most people are willing to walk up to one mile, a trip that can be taken in 20 minutes. For this reason, walkways to transit may not follow regular street patterns which would often create routes of more than a mile.

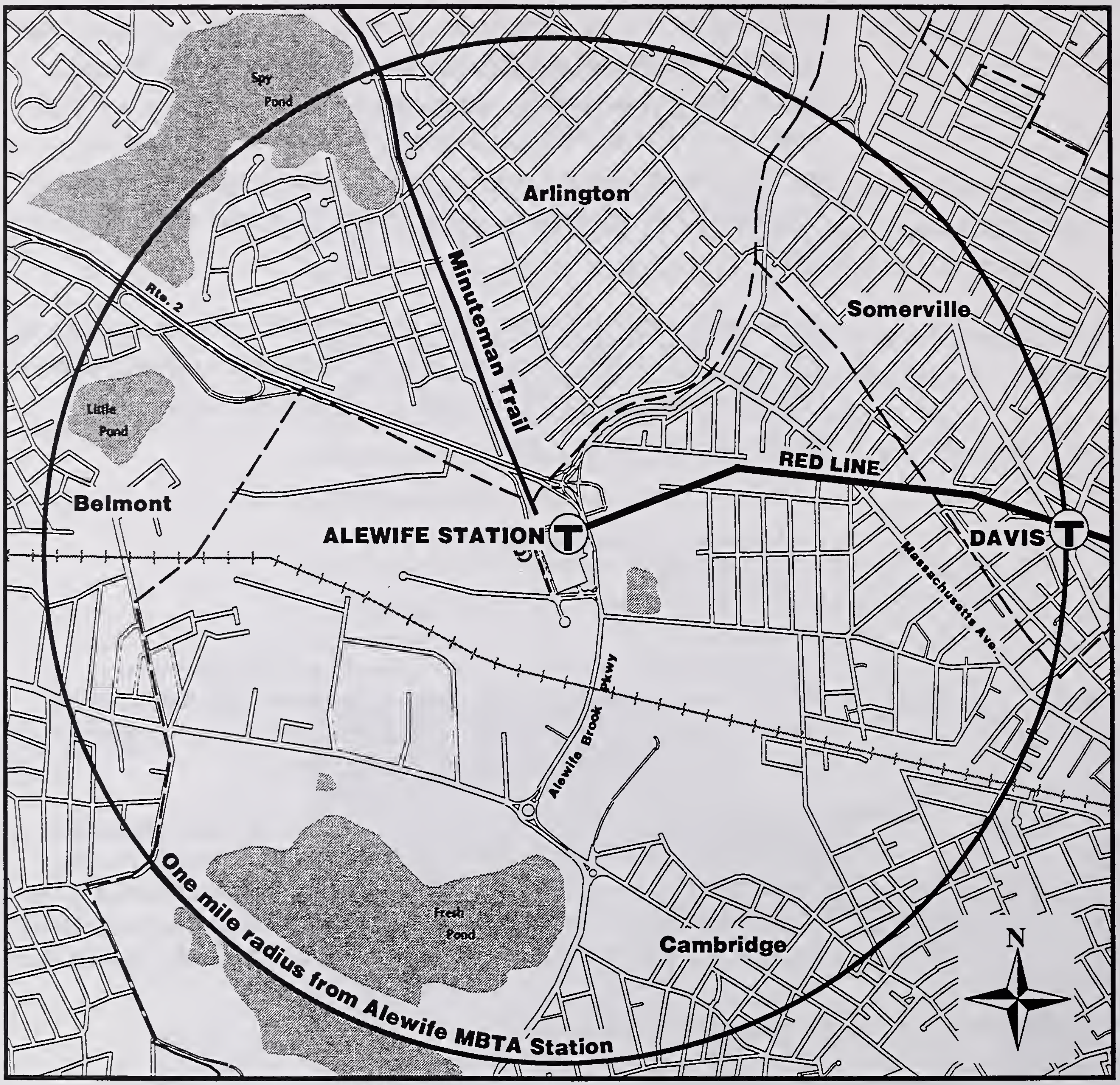
Walking to Alewife Station

ARLINGTON

The Alewife Station is located near heavily-settled residential neighborhoods of Arlington. Reaching the heavy-rail station of the Massachusetts Bay Transportation Authority (MBTA) on regular streets is indirect and time-consuming, however.

Many residents use a more direct off-street route to reach the subway station on foot. This walkway is a segment just beyond the 11-mile Minuteman Commuter Bikeway (MCB), which was constructed along an abandoned rail line. On a daily basis 1,000 people who live within a one-mile radius of the station walk along the MCB to reach the station.

Many Arlington residents use this walkway to the MBTA Alewife Station. A linear park to the east also connects Cambridge pedestrians with Alewife Station.



The areas within the circle are at most a twenty-minute walk from the Alewife MBTA Station.

SITING INTERMODAL TRANSIT FACILITIES IN DOWNTOWNS

The most effective way of ensuring that people will walk to public transportation is to locate transit stations close to their homes and jobs. An increasing number of communities, such as Worcester, Fitchburg, and several communities on the South Shore's Old Colony Railroad route, are locating or renovating train and bus service in their downtowns.

Siting intermodal transit facilities in town centers increases pedestrian access and serves as a highly visible symbol of public investment in older communities.

Intermodal Transit Facility
BROCKTON

Several years ago, Brockton officials located the Brockton Area Transit bus station centrally, two blocks from City Hall and within minutes of the commercial downtown. The transit station is an attractive outdoor facility, providing both ample space for buses and tree-shaded benches and shelters for patrons. The area is open, well-lit and patrolled by security officers, adding to the sense of safety.

A well-designed bus station, such as Brockton's, includes benches, shelters, lighting, shade trees and information booths.

The terminal, which contains at least 14 bays, accommodates private bus companies, such as the Plymouth and Brockton Line and local and commuter buses operated by the Brockton Area Transit Authority. The Authority also operates an information booth on-site for fare and schedule information.

The terminal is clearly marked from the street, and can be reached by sidewalk either through the main entrance and exit or along a wide alley that connects to a commercial street.

The city proposes to relocate the bus station to a larger site across the street from the new Old Colony commuter-rail station five blocks from City Hall. This plan will provide intermodal options for residents and commuters.

Benefits

The ease of access, attractiveness and convenience of the Brockton bus terminal make it a busy place that serves residents well. The terminal is well-connected by sidewalks to downtown businesses, banks and city services. Once the commuter rail is in place these benefits will multiply.

WALKING TO TRANSIT IN COMMERCIAL CENTERS

Massachusetts residents benefit from a wide variety of public transit services. Buses, trackless trolleys, commuter rail, subway trains and ferries all connect people on foot with shopping, jobs and recreation. For these reasons, walking routes to transit that are convenient and well-marked are essential.

For many transit users the typical access point is a nearby bus stop. In rural areas of Massachusetts some bus systems, such as the Berkshire Regional Transit Authority, known as "The B", make flag-stops to pick up and discharge passengers, thus providing added flexibility for both the operator and patrons.

When transportation services are based on fixed-site facilities such as rail lines, access points need to be visible, clearly marked and easily reached.

Walkways to Transit Service

NEWTON CENTRE

The Newton Centre station on the Massachusetts Bay Transportation Authority (MBTA) Green Line is located in the heart of a commercial area. However, the station is located below street level and is separate from surrounding businesses and homes. The station is also served by connecting bus service.

Both the City of Newton and the MBTA have built a variety of access points to the station, with a combination of steps and ramped paths. These allow numerous connections to the neighborhood. In addition, the directions for bus service are clearly marked. Curb-cuts and retrofitted changes in street corner radii are also designed to give pedestrians a high priority on the streets in the immediate vicinity of the station.

(left)
The Newton Centre station is well-marked and well-connected to adjacent sidewalks.

(right)
Transit service offers easy, frequent and inexpensive connections to commercial, residential and recreational areas.

(below)
Signage, benches and bicycle racks are helpful.

CHAPTER 4

WALKING: AN ON-GOING COMMUNITY INTEREST

To encourage residents to take more short daily trips on foot, whether to school, to work, shops or recreation, communities must integrate walking into their on-going life. Where this effort has been most successful, local civic groups and individuals have supplemented the work of public works and planning officials.

As the study team toured the Commonwealth to document what had been done for pedestrians, it found numerous examples of merchants fixing up Main Street, of residents buying signs and trees, and of private sector programs designed to encourage people to walk for fitness. In communities where civic groups were the most active, more people walked, and they walked along attractive and safe paths and sidewalks.

This section highlights the importance of such community programs and business sponsorships to the creation and maintenance of effective walking environments.

Community Programs

Two types of community programs which benefit pedestrians are school walking programs and individual/organizational contribution programs. Examples of these are presented in the following illustrations.

SCHOOL WALKING PROGRAMS

School educational programs are numerous and diverse. One of them, the "Saving Lives" program, teaches students the rudiments of the rules of the road by concentrating on smart walking.

"Saving Lives" Program

MEDFORD

In the City of Medford, a program called "Medford Saving Lives" is an active pedestrian-safety initiative funded by the City. The program gives particular attention to school children and senior citizens, groups which traditionally walk the most, and which are most often involved in pedestrian crashes. "Saving Lives" proved its educational value in helping to avoid pedestrian injuries.

Originally a federally-funded program, Medford city officials now support the program out of municipal funds. In addition, a non-profit group called "Friends of Medford Saving Lives" was established in order to undertake private-sector fund-raising efforts for safety-related program materials to be used in schools.

Elsewhere in Massachusetts

Other municipalities have established school programs through their police or community safety departments. An important part of the community safety message is teaching children the rudiments of smart walking, including choosing the proper routes, using crosswalks, and obeying signals at major intersections.

In other communities, parent-teacher organizations contribute funds for educational materials and an automobile dealership in one town regularly provides a car for the safety officer to drive on his rounds among nine schools in the municipal school system.

Pedestrian right-of-way signage is posted prominently at many Medford crosswalks as part of the "Medford Saving Lives" program.

INDIVIDUAL AND ORGANIZATIONAL CONTRIBUTIONS

Many communities have programs which encourage individuals and organizations to contribute to the cost of planting trees and maintaining public spaces. These programs defray the cost of public expenditures and also encourage public participation.

Adopt-a-Sign

BROOKLINE

In Brookline, individuals and organizations adopt trees and signs. The signs, which read "Stop for Pedestrians in Crosswalk," are placed at unsignalized locations where pedestrian crossings are difficult. (M.G.L. 89, subsection 11 stipulates that vehicles must yield to pedestrians.) Adopters pay $30 for each of the 30-inch-square signs. Most adopters live near the spots where the signs are posted. The Town installs and maintains the signs in perpetuity. The program was initiated by the owner of a large apartment building who wanted to improve pedestrian safety. The Adopt-a-Sign Program was originally an Adopt-a-Barrel program costing $75.

Benefits

The Adopt-a-Sign program helps to defray the cost to the town for these improvements, and promote community participation and town beautification.

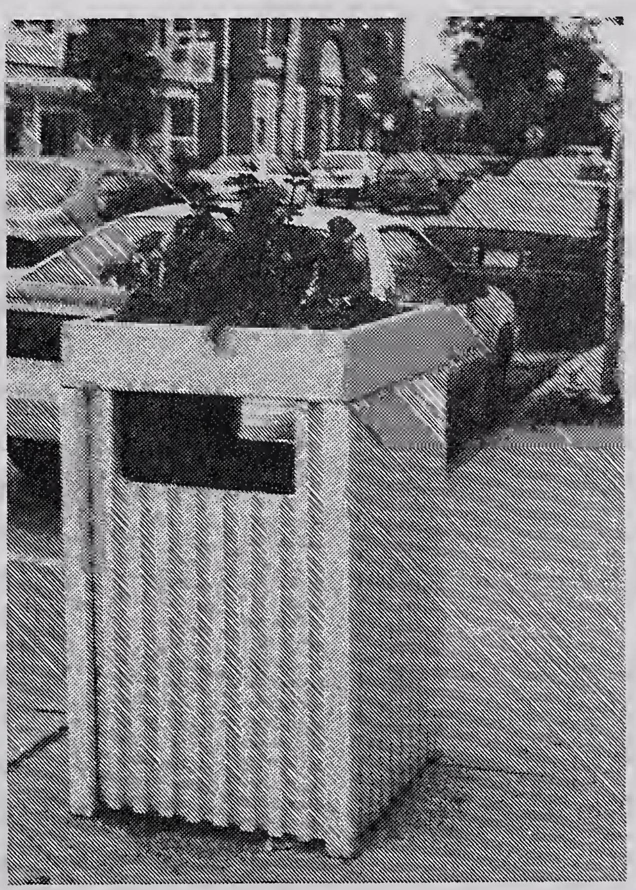
Elsewhere in Massachusetts

Many programs take the form of adopting or purchasing individual items. In Quincy, a plaza near City Hall was financed in part by the purchase of individual bricks, an act which fosters civic involvement. Residents go to the plaza to find their names on the bricks they have purchased.

In western Massachusetts, civic groups formed Pittsfield Beautiful, Inc., in 1988 "to foster and fund projects of beautification, preservation and conservation within the city." The group has planted more than 100 trees and shrubs along downtown streets and annually distributes plants to 600 first-grade students.

Business Sponsorships

Throughout Massachusetts, businesses are sponsoring programs which make communities more walkable. Some businesses have instituted fitness programs in order to encourage their employees to walk. Others make contributions to pay for the plantings, banners and seating which embellish Main Street. As the following illustrations show, many communities are discovering new ways, like community-developer partnerships and public-private cooperation, to help finance improvements for pedestrians.



In Hyannis, the Chamber of Commerce provides these specially designed combination planters/trash cans.

CREATIVE FINANCING OF COMMUNITY IMPROVEMENTS

With increasing demands on municipal budgets, officials in Massachusetts communities are finding creative ways to finance pedestrian improvements. The measures in use range from "Adopt-a-Sign" programs to more intricate partnerships between the public and private sectors. These newer mechanisms supplement state and federal programs and bring businesses and property-owners into collaboration with local government.

Creative Financing

PLYMOUTH

Community-Developer Partnerships

The Town of Plymouth has been especially creative in acquiring funding from large developers and property-owners. Plymouth is building sidewalks in its historic core, along the wharves and commercial district, partly with money received from developers in exchange for the permission to build in Plymouth.

A developer was allowed to build a store in town and contributed $100,000 for sidewalk construction. A major retailer financed the construction and improvement of three intersections in town, paying for the lights, road-improvements, signals and crosswalks. The company also funded the landscaping, lighting and signage in the parking lots at its store in Plymouth. In addition, it is contributing $300,000 for the rail/trail project which runs directly behind its store.

The Department of Public Works was able to establish a town nursery with a grant from a large utility company, following the negotiated award of a contract for provision of utilities to a large residential development.

Federal Funding for Transit and Local Attractions

A branch-line of the Old Colony Railroad extending to North Plymouth will open in the spring of 1997. The Town of Plymouth applied for, and received, federal transportation money to partially fund a trolley line and bicycle and walking paths on the former rail-bed of the Old Colony MBTA line. The paths and trolley line are expected to open in the summer of 1997 and will run 1.5 miles along the harbor from the former cordage company to the town center.

Private-Public Cooperation

Because of the narrow width of streets in town, the Department of Public Works also plants trees on private property. Property owners water the trees, but the town provides all other maintenance and care.

Re-use of Resources

Plymouth salvaged old granite curbing from reconstructed roads and sidewalks and installed them in the historic core of town, where the old stone is aesthetically appropriate.

In order to conserve water, the DPW uses effluent from the nearby waste-water plant on trees within the commercial district.

Benefits

Plymouth is financing pedestrian improvements by combining community-developer partnerships, federal funding, public-private cooperation, and re-use of resources imaginatively. The rebuilt and newly constructed facilities allow people to visit the historic harbor town more easily. The sidewalks also connect neighborhoods, parks, and commercial areas. The trees, benches, street lights, trash receptacles and picnic tables create a setting which contributes to Plymouth's economic vitality.

EMPLOYEE FITNESS PROGRAMS

Some companies have recognized the importance of walking as a way of keeping employees fit and energized as part of on-going fitness programs. This is especially important in light of the recent report, *Physical Activity and Health: A Report of the Surgeon General,* which indicates that Americans are not fit enough.

Employee Fitness Program
PITTSFIELD

Employees at a major life insurance company based in Pittsfield created a Walking Club six years ago, "for fun and fitness," according to one of the founders. As walking is a seasonal activity in this part of Massachusetts, the club's season spans June through October. More than 100 employees participate. The company supports the activity as part of the employees' 40-minute lunchtime by offering small prizes to all who log 15 miles in any month.

Two teams of employees agreed to a contest, in which the team which accumulates the highest walking mileage during the current season will win a pizza party. Walks taken for charitable fundraisers will also count toward a team's total mileage.

Benefits

A reporter covering the group on its walking rounds at the company's South Street headquarters decided that "the club appears to be good for morale. The walkers believe they become better workers when they return refreshed, and the company could also get healthier employees in the bargain."

APPENDIX 1

MASSACHUSETTS HIGHWAY DEPARTMENT
ENGINEERING DIRECTIVE E-95-007

Municipal Projects
District Responsibility / Design Standards and the Design Waiver Process

29 November 1995

MASS HIGHWAY

Number: E-95-007

Date: 11/29/95

ENGINEERING DIRECTIVE

Ross B. Dindio

CHIEF ENGINEER

MUNICIPAL PROJECTS
DISTRICT RESPONSIBILITY/
DESIGN STANDARDS AND THE DESIGN WAIVER PROCESS

Purpose

The following directive is intended to provide **interim** guidance, until approval and publication of the revised MassHighway Design Manual, for project initiation and approval, design standards, and the design waiver process for municipal projects. Adherence to this directive will help to provide statewide and district wide consistency when implementing municipal projects. Portions of this directive concerning design standards and the waiver process are also applicable to other MHD roadway projects. This directive does not apply to "Footprint" bridges where the existing **Design Policy - Bridge R&R Program for Non-NHS Roadways** continues to apply.

District Responsibility

When a project has been requested by a municipality, the District shall meet with the municipality to discuss and review the project parameters, design criteria, the requirements for a Functional Design Report (Safety and Design Report) and the need for strong community support with the municipality. The District shall also determine whether design waivers may be required, what environmental permits may be needed, and whether the project will require full size plans.

After determining the scope of the project which may be resurfacing/rehabilitation, minor or major reconstruction, or new construction, the District shall then make a recommendation to the municipality on how to proceed. This may include a recommendation to use Chapter 90 funding rather than requesting other Department funds. The District may also recommend that an informational meeting be held to determine the degree of community support prior to formally requesting the project.

After satisfactory completion of this review, the municipality shall send a formal written request to the District and the RPA. The District shall then make a formal recommendation to the Project Review Committee using the standard request form. The District shall notify the PRC on this form whether any design waivers may be required, the specific waiver (s) requested, and the magnitude of the deviation from minimum standards.

If the District determines that the project is essentially a resurfacing/ rehabilitation project; requires less than full size plans; has only minor geometric changes; has only construction easements and no land takings; has minimal environmental impacts; and does not require a Design Public Hearing, the District will recommend to the PRC that the project assigned to the District (as Project Manager) and processed through the Highway Engineering Division's Highway Location and Design Section's Resurfacing Unit. All other municipal projects will be assigned to either the Engineering Expediting Section or the Traffic Engineering Section who will function as Project Manager.

Design Standards

The following shall apply to the use of design standards:

Design standards are based on safety and capacity studies performed through AASHTO and other engineering research organizations. The standards have been developed from and are used to define the physical characteristics of the roadway. Therefore:

Design standards are not dependent on the source of funding for the project. The roadway standards are the same whether the project is non-federal aid, or funded with any category of federal funds.

The **design standards** are based on the functional classification of the roadway. This classification is as approved by MHD, the RPA's, and FHWA and is available through the BTP&D's Functional Classification maps and listings.

Design speed (based on the AASHTO definitions) shall define and be applied in the design of roadways. Other definitions of "speed" of the roadway (i.e. running speed, posted speed, etc.) shall not be used in design.

Table 5.1 from the **1994 Draft Metric Highway Design Manual** (as revised and attached) shall be used as the minimum and desirable standards for lane and shoulder width.

Chapter 8 of the **1989 Highway Design Manual** shall be disregarded in its entirety. There is no longer a "3R" funding category. Design standards apply to roadways regardless of type of funding or project.

Usable shoulder as defined by AASHTO is the "shoulder" required for design. An absolute minimum additional 0.5 meters is required as an offset from usable shoulder to vertical elements taller than 150 mm (i.e. guardrail, barrier curb, walls, etc.).

Bicycles and pedestrians must be accommodated within the roadway corridors where access to the roadway is legally permitted. The usable shoulder (from Table 5.1) shall include a desirable (preferred) paved width of 1.25 meters (0.75 meters minimum) to accommodate bicycles. If accommodations for bicycles can not be provided, a design waiver request **must** be submitted at the 25% stage.

Design Waivers

Desirable design standards should be used wherever possible. Use of values below desirable standards must be justified in the Functional Design Report. **Use of design values below minimum MHD standards require design waivers.**

A **Functional Design Report** (Safety and Design Report) should be prepared by the municipality. The design waiver request should accompany this report and must be submitted with the 25% submission. Evidence that the community does not support the use of minimum design standards for the project may not be used as a basis for a design waiver. Approval of the design waiver and the 25% submission will be subject to documented results of the Design Public Hearing.

The municipality must submit the design waiver request to the appropriate Project Manager (District or Boston HQ) for review. The responsible Section Head (Highway Design, Expediting, Traffic) will then review the request with the District and make a recommendation to the Chief Engineer for his determination. After Chief Engineer approval, federally funded - NHS projects shall be forwarded to FHWA for their determination. The design waiver approvals must then be kept in a permanent project file for future reference.

The design waiver request must include, at a minimum, a description of the existing conditions and problems, the proposed solution, reference to applicable design standards, and appropriate justification for use of reduced criteria. The Mass Highway Design Manual and applicable Department policy and directives shall be the first source of reference. Reference to AASHTO publications such as the "Green Book" and other appropriate technical publications may be used to facilitate the waiver process. Other reasons for justification may include:

low numbers of accidents
significant right of way restrictions
wetland impacts
Scenic Roads
parks, agricultural, conservation areas
historical/archaeological restrictions
trees or protected stone walls
other environmental impacts
conformity with adjacent roadway sections

In general, less detailed justification will be required for resurfacing/ rehabilitation/reconstruction projects. The highest degree of justification will be required for work on NHS facilities.

The 100% PS&E transmittal to CEPO must include a reference to all design waivers granted for the project.

Absolute Minimum Criteria

The following values are **"absolute" minimums** below which design waivers will not be approved. Design waivers are required, however, for use of these substandard values. If these values cannot be met, the project shall be denied for funding through the Department. It may, however, be considered as a maintenance (resurfacing) project for which the municipality may use Chapter 90 funds or seek other funding sources to maintain the roadway in its existing configuration.

Rural Arterials
    3.5 meter travel lanes
    1.25 meter outside usable shoulder

Urban Arterials
    3.25 meter travel lanes
    0.0 meter usable shoulder (plus 0.5 meter paved offset to travel lane)

Rural Collectors
    3.25 meter travel lanes
    0.75 meter outside usable shoulder

Urban Collectors
- 3.25 meter travel lanes
- 0.0 usable shoulder (plus 0.5 meter paved offset to travel lane)

Local Roads
- 6.0 meters paved (two travel lanes) plus 0.5 meter (paved or graded) offsets

All Roadways
- 0.5 meter offset to vertical elements taller than 150 mm from usable shoulder
- 0.5 meter offset to roadway edge from travel lane (when usable shoulder not provided)

APPENDIX 2

MASSACHUSETTS HIGHWAY DEPARTMENT
ENGINEERING DIRECTIVE E-96-001

Standardization of Crosswalk Markings

26 March 1996

MASS HIGHWAY

Number: E-96-001

Date: 3/26/96

ENGINEERING DIRECTIVE

Thomas F. Broderick, P.E.
CHIEF ENGINEER

STANDARDIZATION OF CROSSWALK MARKINGS

The Department is responsible for installation and maintenance of crosswalk markings in accordance with the guidelines provided in the MUTCD and the Highway Design Manual. However, these references give only general information regarding such markings.

The purpose of this directive is to provide specific requirements to be followed for the installation of crosswalk markings on state highways.

Effective immediately, crosswalk markings provided as part of any project shall conform to the following:

1) The standard crosswalk marking used on the state highway system shall be the 'TYPE A' marking as detailed in Figure 3 - 14 of the MUTCD.

2) The standard line width of the markings shall be three hundred (300) millimeters.

3) The width between crosswalk lines should be no less than two (2) meters.

4) Where provided, stop lines should be placed no less than 1.25 (one and one-quarter) meters behind an adjacent crosswalk line.

5) Isolated crosswalks shall not be installed in areas with a sight distance less than the minimum required under Table 3.11 **STOPPING SIGHT DISTANCE** in the MHD Highway Design Manual.

This directive applies to new crosswalk installations at state highway locations and in state-funded projects. However, if a municipality has adopted a local standard which is in conformance with the MUTCD, it may be incorporated into state-funded projects which do not involve state highway.

APPENDIX 3

Massachusetts General Law
Chapter 87, H.B. 1940

"Public Ways - Bicycle and Pedestrian Access"

CHAPTER 87
H.B. No. 1940
PUBLIC WAYS--BICYCLE, PEDESTRIAN ACCESS

AN ACT relative to BICYCLE and PEDESTRIAN access in construction of public ways.

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:

Chapter 90E of the General Laws is hereby amended by inserting after section 2, as appearing in the 1994 Official Edition, the following section:--

<< MA ST 90E s 2A >>

Section 2A. The commissioner shall make all reasonable provisions for the accommodation of BICYCLE and PEDESTRIAN traffic in the planning, design, and construction, reconstruction or maintenance of any project undertaken by the department. Such provisions that are unreasonable shall include, but not be limited to, those which the commissioner, after appropriate review by the bicycle program coordinator, determines would be contrary to acceptable standards of public safety, degrade environmental quality or conflict with existing rights of way.

Approved May 20, 1996.

APPENDIX 4

Massachusetts General Law
Chapter 89, Subsection 11

"Yield to Pedestrians in Crosswalks"

§ 11. Marked crosswalks; yielding right of way to pedestrians

When traffic control signals are not in place or not in operation the driver of a vehicle shall yield the right of way, slowing down or stopping if need be so to yield, to a pedestrian crossing the roadway within a crosswalk marked in accordance with standards established by the department of public works if the pedestrian is on that half of the traveled part of the way on which the vehicle is traveling or if the pedestrian approaches from the opposite half of the traveled part of the way to within five feet of that half of the traveled part of the way on which said vehicle is traveling.

No driver of a vehicle shall pass any other vehicle which has stopped at a marked crosswalk to permit a pedestrian to cross, nor shall any such operator enter a marked crosswalk until there is a sufficient space beyond the crosswalk to accommodate the vehicle he is operating, notwithstanding that a traffic control signal may indicate that vehicles may proceed.

Whoever violates any provision of this section shall be punished by a fine of not more than one hundred dollars.

Added by St.1967, c. 405, § 1. Amended by St.1973, c. 146.

Historical Note

St.1967, c. 405, § 1, was approved June 26, 1967, and by § 3 made effective July 1, 1968.

St.1973, c. 146, approved April 5, 1973, substituted "one hundred" for "fifty" in the third paragraph.

Prior Laws:

G.L. c. 90, § 20B, as added by St.1960, c. 810.

Library References

Automobiles ⇐160(4), 335.
WESTLAW Topic No. 48A.

C.J.S. Motor Vehicles §§ 382 et seq., 606 et seq.

Notes of Decisions

Jury questions 1

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1. Jury questions

Whether motorist who struck ten-year-old pedestrian at point in roadway five feet beyond midpoint of posted school crossing intersection was negligent was question for jury in personal injury actions. Collings v. Pioneer Shade & Screen Co. (1969) 253 N.E.2d 870, 356 Mass. 729.

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§ 11. Marked crosswalks; yielding right of way to pedestrians; penalty

When traffic control signals are not in place or not in operation the driver of a vehicle shall yield the right of way, slowing down or stopping if need be so to yield, to a pedestrian crossing the roadway within a crosswalk marked in accordance with standards established by the department of highways if the pedestrian is on that half of the traveled part of the way on which the vehicle is traveling or if the pedestrian approaches from the opposite half of the traveled part of the way to within five feet of that half of the traveled part of the way on which said vehicle is traveling.

[See main volume for second and third paragraphs]

Amended by St.1991, c. 552, § 67.

Historical and Statutory Notes

1991 Legislation

St.1991, c. 552, § 67, approved Jan. 9, 1992, in the first paragraph, substituted "department of highways" for "department of public works".

APPENDIX 5

LIST OF COMMUNITIES VISITED
by the *Walk*BostonTeam

Spring and Summer 1996

The *Walk*Boston team conducted interviews in the following communities with the officials listed.

Arlington	Director of Planning
Brimfield	Highway Department Superintendent
Brockton	Planner, Public Facilities Director, and Parks Director
Cambridge	Traffic Engineer
Chelmsford	Project Engineer
Gardner	Director of Public Works
Great Barrington	Town Engineer
Greenfield	Director of Public Works
Hyannis	Superintendent of Public Works
Lawrence	Transportation Planner
Medford	Deputy Director of Public Works
New Bedford	Environmental Planner
Newburyport	Director of Public Works
Newton	Director of Public Works
Northampton	Director of Public Works
Pioneer Valley Planning Commission	Regional Planner
Pittsfield	Commissioner of Public Works
Plymouth	Director of Public Works
Provincetown	Director of Public Works
Quincy	Commissioner of Public Works
Sandwich	Superintendent of Public Works
Springfield	Director of Public Works
Sturbridge	Director of Public Works
Swansea	Director of Engineering and Highway Services
Worcester	Commisioner of Public Works and Traffic Engineer

APPENDIX 6

BIBLIOGRAPHY

BIBLIOGRAPHY

The *Walk*Boston team reviewed more than 30 documents which may be characterized as guides to walking, pedestrian issues and street design. These included documents cited by interviewees and other source materials which provide suggestions, options and improvements to physical facilities that would offer people wider transportation choices.

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Neighborhood Traffic Mitigation Program, City of Boulder (CO) Transportation Division, 1995.

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Destination Downtown: Streetscape Investments for a Walkable City; The Planning Department, City and County of San Francisco, August 1994, 170 pp.

Municipal Strategies to Increase Pedestrian Travel; Washington State Energy Office, August 1994, 50 pp.

Accommodating the Pedestrian: Adapting Towns and Neighborhoods for Walking and Bicycling, Richard K. Untermann, 1984, 232 pp.

Making the Land Use Transportation Air Quality Connection, Volume 6: Implementation, 1000 Friends of Oregon, various consultants and funding sources, incl. The Energy Foundation and The Nathan Cummings Foundation, October 1995.

Street Design: Reassessing the Safety, Sociability, and Economics of Streets, Richard K. Untermann and Anne Vernez Moudon, University of Washington, January 1989, 54 pp.

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Additional Resources

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